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AD-696 901

WEATHER SATELLITES

Volume I of II Volumes

A DDC BIBLIOGRAPHY

June 1958 - May 1968

DDC-TAS-69-63-1

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F O R E W O R D

This bibliography, Volume I of two volumes, comprises 69 entries arranged by AD number under the heading AD Bibliographic References.

Computer-generated indexes covering Corporate Author/Monitoring Agency and Subject are furnished. The computer searches encompass the period January 1953 through September 1969.

Volume II, AD-862 200 consists of the references of Volume I as well as the unclassified with limited distribution entries.

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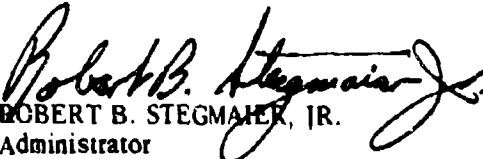

ROBERT B. STEGMAIER, JR.
Administrator
Defense Documentation Center

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-680 349 4/2 22/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
SPACE METEOROLOGISTS. (U)
MAY 68 7P ANDRONOV, M. I.
REPT. NO. FTD-HT-23-1574-67

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. FROM PRAVDA, MOSCOW
(USSR) P3, 26 OCT 67, BY R. ZECCOLA.

DESCRIPTORS: (1. METEOROLOGICAL SATELLITES, USSR).
REVIEWS, WEATHER COMMUNICATIONS, SOLAR CELLS,
THERMAL STRESSES, SPACE ENVIRONMENTAL CONDITIONS,
SATELLITE NETWORKS. (U)
IDENTIFIERS: COSMOS SATELLITES, TRANSLATIONS (U)

THE SOVIETS HAVE CREATED THE 'METEOR'
METEOROLOGICAL SYSTEM WHICH HAS FOR MORE THAN A HALF-
YEAR PROVIDED INFORMATION CHARACTERIZING THE WEATHER
SITUATION OVER THE ENTIRE GLOBE. THE FIRST
RESEARCH SATELLITES WERE THE COSMOS 14 AND COSMOS
23. EXPERIMENTAL EQUIPMENT DEVELOPMENT TESTS WERE
CARRIED OUT FOR THE ENTIRE SYSTEM; THE RESULTS WERE
EMBODIED IN THE COSMOS 122 LAUNCHED 25 JUNE 1966.
COSMOS 144 AND COSMOS 154 WERE LAUNCHED 28
FEBRUARY AND 27 APRIL 1967, RESPECTIVELY. THE
WEATHER SATELLITES HAVE SOLVED SCIENTIFIC PROBLEMS
RELATED TO SPACE ENGINEERING. THEY HAVE
DEMONSTRATED THE FEASIBILITY OF PROTRACTED, STABLE
SOLAR BATTERY PERFORMANCE IN SPACE AND UNDER SHARPLY
FLUCTUATING TEMPERATURE CONDITIONS AND THERMAL SHOCKS
WHEN ENTERING AND LEAVING SHADOWED AREAS.
(AUTHOR) (U)

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/01K09

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-678 408 22/2 22/3 17/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
ON SPACE ORBITS. (U)
DEC 67 11P
REPT. NO. FTD-MT-23-1555-67

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. FROM SOVETSKAYA
ROSSIYA (USSR) P4, 4 JUN 67, BY J. STOCK.

DESCRIPTORS: (•METEOROLOGICAL SATELLITES, •ORBITAL
TRAJECTORIES), METEOROLOGICAL RADAR, SATELLITE
TRACKING SYSTEMS, METEOROLOGICAL PARAMETERS,
COMPUTERS, DATA PROCESSING SYSTEMS, TELEMETER
SYSTEMS, DATA TRANSMISSION SYSTEMS, CLOUDS, SNOW,
ICE, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

DISCUSSION OF TWO ARTIFICIAL SATELLITES ORBITED FOR
PURPOSES OF METEOROLOGICAL OBSERVATION WHICH,
TOGETHER WITH DATA RECEPTION, PROCESSING AND
DISTRIBUTION POINTS, FORM THE EXPERIMENTAL SPACE
METEOROLOGICAL SYSTEM 'METEOR.' THE MUTUAL
POSITION OF THE ORBITS OF THE SATELLITES IS SELECTED
SO THAT THEY ACCOMPLISH WEATHER OBSERVATIONS OVER
EACH REGION OF THE EARTH'S SPHERE AT INTERVALS OF
APPROXIMATELY 6 HOURS. THIS ENABLES PURSUIT OF THE
DEVELOPMENT OF ATMOSPHERIC PROCESS IN THE VARIOUS
AREAS AND CREATES THE POSSIBILITY OF OBTAINING AND
PROCESSING METEOROLOGICAL DATA FROM HALF THE SURFACE
OF THE EARTH WITHIN A PERIOD OF 24 HOURS. THE
COMPLICATED PROBLEM OF PROCESSING THE DATA IS SOLVED
WITH THE AID OF A GROUND CONTROL COMPLEX.
TELEMETRIC INFORMATION IS PUT INTO RAPIDLY
OPERATING ELECTRONIC COMPUTERS. PRACTICALLY
IMMEDIATELY AFTER COMMUNICATING WITH THE SATELLITES
COMPUTERS COMPLETE THE PROCESSING OF ALL TELEMETERED
DATA, EDIT IT AND TRANSMIT IT IN FORM SUITED FOR USE.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-678 397 22/2

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
THE SPACE ARROW. (U)

DEC 67 7p OBUKHOV, A. MIKHAILOV, V. I

SARYCHEV, V. ISOKOLOV, L. I

REPT. NO. FTD-HT-23-1364-67

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. FROM PRAVDA, MOSCOW
(USSR) P3, 12 APR 67. BY R. ZECCOLA.

DESCRIPTORS: (METEOROLOGICAL SATELLITES, USSR),
SATELLITES (ARTIFICIAL), GUIDANCE,
METEOROLOGICAL PHENOMENA, SOLAR RADIATION,
PHOTOMETERS, PREDICTIONS, TELEMETERING
TRANSMITTERS (U)

IDENTIFIERS: COSMOS 149 SATELLITE (USSR),
TRANSLATIONS (U)

ONE OF THE MISSIONS OF THE SOVIET SCIENTIFIC
RESEARCH PROGRAM IS THE STUDY OF THE PROPERTIES OF
THE TERRESTRIAL ATMOSPHERE BY IMPLEMENTATION OF THE
'KOSMOS' SERIES ARTIFICIAL EARTH SATELLITES
(AES). THESE STUDIES ARE DIRECTLY RELATED BOTH
TO THE PROBLEM OF EMPLOYING AES VEHICLES FOR
WEATHER FORECASTING AND PROBLEMS OF A MORE GENERAL
GEOPHYSICAL SIGNIFICANCE. SATELLITES ARE BEING
USED TO OBTAIN TV IMAGES OF CLOUD SYSTEMS AND
ACTINOMETRIC DATA WITH RESPECT TO THE EARTH'S FIELD
OF RADIATION. THE LAUNCHING OF 'KOSMOS 149'
RESULTED IN CONSIDERABLE INFORMATION BEING OBTAINED
ON THE THERMAL REGIME OF THE EARTH'S ATMOSPHERE AND
CLOUDS. QUANTITATIVE CLOUD COVER CHARACTERISTICS
'TIED IN' WITH TV PICTURES, AND ANGULAR AND
SPECTRAL CHARACTERISTICS OF OUR PLANET'S BRILLIANCE
AS SEEN FROM SPACE. (AUTHOR) (U)

UNCLASSIFIED

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-651 395 4/2 17/2 22/2 9/3
RADIATION SYSTEMS DIV MELBOURNE FLA
SYSTEM STUDY FOR MOBILE METEOROLOGICAL SATELLITE
GROUND STATIONS.
DESCRIPTIVE NOTE. FINAL REPT.
67 244p
CONTRACT: DA-28-043-AMC-02457(S)

(U)

UNCLASSIFIED REPORT

DESCRIPTORS: (•METEOROLOGICAL SATELLITES,
•COMMUNICATION SYSTEMS), (•WEATHER STATIONS,
•DATA TRANSMISSION SYSTEMS), (•WEATHER
FORECASTING, FEASIBILITY STUDIES), WEATHER
COMMUNICATIONS, SIGNAL-TO-NOISE RATIO, ANTENNAS,
PREAMPLIFIERS, DEMODULATORS, DATA PROCESSING
SYSTEMS, DISPLAY SYSTEMS, TRACKING, MAGNETIC
RECORDING SYSTEMS

(U)

THIS REPORT PRESENTS A CONCEPT FOR A LOW COST
MOBILE METEOROLOGICAL GROUND TERMINAL. THE MAJOR
SUBSYSTEMS IN THIS CONCEPTUAL SYSTEM ARE STUDIED IN
DETAIL AND A COMPARISON OF VARIOUS METHODS OF MEETING
SUBSYSTEM REQUIREMENTS IS MADE. THE MAJOR ELEMENTS
STUDIED ARE THE FOLLOWING: ANTENNA, PREAMPLIFIER,
DEMODULATOR, SYNCHRONIZATION AND DATA HANDLING
EQUIPMENT, AND DISPLAY AND HARD COPY GENERATION
EQUIPMENT. THE RESULTS OF THESE STUDIES ARE
PRESENTED IN THE FORM OF TRADE-OFF CHARTS WHICH SHOW
THE CAPABILITIES AND LIMITATIONS OF EACH SUBSYSTEM
APPROACH. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-646 617 4/2 22/2
AMERICAN METEOROLOGICAL SOCIETY BOSTON MASS
NUMERICAL INTERPRETATION OF CLOUD INFORMATION FROM
METEOROLOGICAL SATELLITES. (U)
DESCRIPTIVE NOTE: RESEARCH TRANS.,
OCT 66 19P MUSAELYAN, SH. A. ICHEKIRDA,
A. 2. 1
REPT. NO. Y-R-468
CONTRACT: AF 19(628)-3880
MONITOR: TT 67-60856

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: O CHISLENNOI INTERPRETATSII
INFORMATSII OB OBLACHNOSTI. POSTUPAYUSHCHEI S
METEOROLOGICHESKIKH SPUTNIKOV, TRANS. OF GLAVNAYA
GEOFIZICHESKAYA OBSERVATORIYA, Leningrad, TRUDY
(USSR), N166 P189-202 1964.

DESCRIPTORS: (*METEOROLOGICAL SATELLITES, CLOUDS),
(*CLOUDS, NORTHERN HEMISPHERE), CLOUD COVER,
ATMOSPHERIC MOTION, FOURIER ANALYSIS, SERIES,
LEAST SQUARES METHOD, METEOROLOGICAL CHARTS,
WEATHER FORECASTING, METEOROLOGICAL PHENOMENA (U)

DETERMINATION OF THE CLOUD FIELD FROM THE VERTICAL
MOTION FIELD IS A PROBLEM OF LONG STANDING, AND NOW
WE ARE CONCERNED WITH THE OPPOSITE PROBLEM,
DETERMINATION OF THE VERTICAL MOTION FIELD FROM THE
CLOUD FIELD. THIS NEW PROBLEM HAS ARISEN IN
CONNECTION WITH METEOROLOGICAL SATELLITES WHICH
PROVIDE INFORMATION, BASICALLY, ON RADIATION
CHARACTERISTICS AND ON THE STATE OF THE EARTH'S CLOUD
COVER. THIS INFORMATION MUST BE EMPLOYED
OPERATIONALLY AND WITH MAXIMUM EFFICIENCY BY
METEOROLOGISTS. THE STRUCTURE AND DIMENSIONS OF
VARIOUS CLOUD FORMATIONS AND THEIR INHERENT
CHARACTERISTIC FEATURES IN VARIOUS SYNOPTIC
SITUATIONS MAY BE ESTABLISHED ON THE BASIS OF
SATELLITE PHOTOGRAPHS OF CLOUD SYSTEMS, IT IS
ESPECIALLY IMPORTANT TO OBTAIN SUCH INFORMATION FROM
REGIONS WHERE METEOROLOGICAL OBSERVATIONS ARE RARELY
MADE. MANY METEOROLOGISTS ARE CONCERNED WITH
SYNOPTIC INTERPRETATION OF INFORMATION ON CLOUD
SYSTEMS. THIS INTERPRETATION, IN FINAL ANALYSIS,
AMOUNTS TO A VISUAL STUDY OF THE CLOUD FIELD AND THE
INTRODUCTION OF CORRECTIONS (SOMETIMES QUITE
SUBSTANTIAL) INTO THE SURFACE CHART, ESPECIALLY FOR
REGIONS WHERE SURFACE INFORMATION IS SCANTY OR
ENTIRELY LACKING. NUMERICAL FORECASTING REQUIRES A
QUANTITATIVE INTERPRETATION OF CLOUD INFORMATION, NOT
A QUALITATIVE SYNOPTIC INTERPRETATION. (U)

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-635 957 22/2

ROYAL AIRCRAFT ESTABLISHMENT FARNBOROUGH (ENGLAND)
ORBITAL PARAMETERS OF STAR-RAD (1962 BETTA KAPPA) FOR
19 SEPTEMBER TO 6 OCTOBER 1965. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.
MAR 66 13P TAYLER, R. J. I
REPT. NO. TR-66102.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*METEOROLOGICAL SATELLITES, *ORBITAL
TRAJECTORIES), MOTION, ANALYSIS (U)
IDENTIFIERS: STAR-RAD (U)

196 OBSERVATIONS OF THE SATELLITE STAR-RAD WERE
USED TO DETERMINE ITS ORBIT AT INTERVALS OF 25 NODES
BETWEEN 19 SEPTEMBER AND 6 OCTOBER 1965. THE
WORK WAS DONE AS A SUPPLEMENT TO A PREVIOUS
DETERMINATION OF THIS SATELLITE'S ORBIT FOR THE YEARS
1962 TO 1964. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-631 509 4/2 22/2 15/7
ARACON GEOPHYSICS CO CONCORD MASS
METEOROLOGICAL SATELLITE TECHNIQUES FOR THE
ARMY. (U)
DESCRIPTIVE NOTE: QUARTERLY REPT, NO. 3, 1 NOV 65-31
JAN 66,
MAR 66 15P SHERR, P. E. ROGERS, C. W. C.
BARNES, J. C. ;
REPT. NO. 9G21-10,
CONTRACT: DA-28-043-AMC-01273(E),
PROJ: DA-1V023001A126
TASK: 1V023001A12601
MONITOR: ECOM , 01273-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-627 442.

DESCRIPTORS: (1) METEOROLOGICAL SATELLITES, ARMY
RESEARCH), (2) WEATHER FORECASTING, (3) ARMY
OPERATIONS), WEATHER COMMUNICATIONS, MILITARY
PERSONNEL, MILITARY TRAINING, METEOROLOGY,
HANDBOOKS (U)

THE RESEARCH WAS REPORTED HEREIN CONDUCTED DURING
THE THIRD QUARTER OF A CONTRACTUAL INVESTIGATION WAS
AIMED AT PROVIDING ARMY FIELD UNITS WITH TECHNIQUES
FOR THE USE OF WEATHER SATELLITE DATA. RESULTS TO
DATE FOR EACH OF SEVERAL TASKS ARE DISCUSSED.
THESE INCLUDE: (1) MESOSCALE ANALYSIS AND
INTERPRETATION STUDIES; (2) ANALYSIS OF ARMY
REQUIREMENTS FOR APPLICATIONS OF WEATHER SATELLITE
DATA; (3) CASE STUDIES OF WORLD WAR II,
KOREAN OR U. S. FIELD MANEUVER SYNOPTIC
SITUATIONS, USING ANALOGS FOR WHICH SATELLITE DATA
ARE AVAILABLE; (4) INVESTIGATIONS OF METHODS FOR
DETERMINING WEATHER AFFECTING ENEMY OPERATIONS;
(5) PROCEDURES FOR FIELD USE OF METEOROLOGICAL
SATELLITE DATA; AND (6) OPERATIONAL GUIDE
PREPARATION. THE RESEARCH, AND DRAFT CHAPTERS OF
THE FINAL REPORT, HAVE BEEN COMPLETED FOR MANY
TASKS. FOR THESE TASKS, ONLY A SUMMARY
STATEMENT OF PRINCIPAL RESULTS IS INCLUDED HERE.
MORE COMPREHENSIVE DISCUSSIONS OF THESE COMPLETED
TASKS CAN BE FOUND IN REPORTS (AD-623 532,
AD-627 442), AND WILL BE INCLUDED IN THE
FORTHCOMING FINAL REPORT AND OPERATIONAL GUIDE BEING
PREPARED UNDER THIS CONTRACT. BRIEF DISCUSSIONS OF
THE YET UNCOMPLETED TASKS ARE PROVIDED HERE.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-628 802 22/2 4/1 20/14
DANISH METEOROLOGICAL INST COPENHAGEN GEOPHYSICAL
SECTION
IONOSPHERIC RESEARCH USING SATELLITES. (U)
DESCRIPTIVE NOTE: ANNUAL SUMMARY REPT, NO. 1, 1 SEP 64-
31 AUG 65.
SEP 65 6P LUNDBAK, ASGER ;
CONTRACT: AF 61(052)-828.
MONITOR: AFRL , 66-77

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*IONOSPHERE, RADIO SIGNALS),
(*METEOROLOGICAL SATELLITES, SIGNALS), MAGNETO-
OPTIC EFFECT, SCINTILLATION, RECORDING SYSTEMS,
IONOSPHERE, ATMOSPHERIC SOUNDING (U)
IDENTIFIERS: EXPLORER (U)

THE REPORT IS OF ADMINISTRATIVE CHARACTER. IT
DEALS WITH RECEIPT OF UNMODULATED SATELLITE SIGNALS,
THE PURPOSE BEING TO RECORD FARADAY ROTATION AND
SCINTILLATION ON 20 AND 40 MC/S. THE SIGNALS ARE
RECORDED BOTH IN GREENLAND AND DENMARK, AND THE
SATELLITES IN QUESTION ARE EXPLORER 22 AND
EXPLORER 27. (AUTHOR) (U)

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ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-627 442 4/2 22/2 15/7

ARACON GEOPHYSICS CO CONCORD MASS
METEOROLOGICAL SATELLITE TECHNIQUES FOR THE
ARMY.

DESCRIPTIVE NOTE: QUARTERLY REPT. NO. 2, 1 AUG-31 OCT
65. (U)

NOV 65 44p SHERR, P. E. ; BOUCHER, R. J. ;
WIDGER, W. K. JR. ; ROGERS, C. W. C. ; BARNES, J.
C. ;

REPT. NO. 9621-7

CONTRACT: DA-28-043-AMC-01273(E)

PROJ: DA-1V0-14501-A-126

TASK: 1V014501A12601

MONITOR: ECOM , 02173-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-623 532.

DESCRIPTORS: (METEOROLOGICAL SATELLITES, ARMY
RESEARCH), (WEATHER FORECASTING, ARMY OPERATIONS),
(ARMY OPERATIONS, WEATHER FORECASTING), MILITARY
PERSONNEL, MILITARY TRAINING, METEOROLOGY,
HANDBOOKS (U)

THE RESEARCH WAS REPORTED HEREIN WAS CONDUCTED
DURING THE SECOND QUARTER OF A CONTRACTUAL
INVESTIGATION WAS AIMED AT PROVIDING THE ARMY FIELD
UNITS WITH TECHNIQUES FOR THE USE OF WEATHER
SATELLITE DATA. RESULTS TO DATE FOR EACH OF SEVERAL
TASKS ARE DISCUSSED. THESE INCLUDE: (1)
MESOSCALE ANALYSIS AND INTERPRETATION STUDIES;
(2) ANALYSIS OF ARMY REQUIREMENTS FOR
APPLICATIONS OF WEATHER SATELLITE DATA; (3) CASE
STUDIES OF WORLD WAR II, KOREAN OR U. S.,
FIELD MANEUVER SYNOPTIC SITUATIONS, USING ANALOGS
FOR WHICH SATELLITE DATA ARE AVAILABLE; (4)
INVESTIGATIONS OF METHODS FOR DETERMINING WEATHER
AFFECTING ENEMY OPERATIONS; (5) PROCEDURES FOR
FIELD USE OF METEOROLOGICAL SATELLITE DATA; AND
(6) OPERATIONAL GUIDE PREPARATION. EXAMPLES OF
THE TYPES OF ANALYSES BEING PREPARED FOR THE TASKS
CONCERNED WITH MESOSCALE STUDIES, CASE STUDIES, AND
WEATHER AFFECTING ENEMY OPERATIONS ARE PRESENTED AND
DISCUSSED. A RATHER COMPLETE DESCRIPTION OF THE
APPLICABILITY OF SATELLITE DATA TO ARMY
METEOROLOGICAL REQUIREMENTS IS PRESENTED AND OUTLINES
THE CAPABILITIES OF THE SATELLITE TO OBSERVE VARIOUS
METEOROLOGICAL PARAMETERS SUCH AS, WIND, TEMPERATURE,
AND VISIBILITY. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-623 532

ARACON GEOPHYSICS CO CONCORD MASS
METEOROLOGICAL SATELLITE TECHNIQUES FOR THE
ARMY.

(U)

DESCRIPTIVE NOTE: QUARTERLY REPT. NO. 1. 1 MAY-31 JUL
65.

AUG 65 31P SHERR, P. E. ; BOUCHER, R. J. ;
WIDGER, W. K. , JR. ; ROGERS, C. W. C. ; BARNES, J.
C. I

CONTRACT: DA28 043AMC01273E

PROJ: IVO 25001A126 01 16

MONITOR: ECOM . 01273-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•METEOROLOGICAL SATELLITES, ARMY
RESEARCH), (•WEATHER FORECASTING, MILITARY
REQUIREMENTS), MILITARY PERSONNEL, TRAINING,
METEOROLOGY, HANDBOOKS

(U)

THE RESEARCH REPORTED HEREIN WAS CONDUCTED DURING
THE FIRST QUARTER OF A CONTRACTUAL INVESTIGATION
AIMED AT PROVIDING THE ARMY FIELD UNITS WITH
TECHNIQUES FOR THE USE OF WEATHER SATELLITE DATA.
RESULTS TO DATE FOR EACH OF SEVERAL TASKS ARE
DISCUSSED. THESE INCLUDE: (1) MESOSCALE
ANALYSIS AND INTERPRETATION STUDIES; (2) ANALYSIS
OF ARMY REQUIREMENTS FOR APPLICATIONS OF WEATHER
SATELLITE DATA; (3) CASE STUDIES OF WORLD WAR
II, KOREAN OR U. S. FIELD MANEUVER SYNOPTIC
SITUATIONS, USING ANALOGS FOR WHICH SATELLITE DATA
ARE AVAILABLE; (4) INVESTIGATIONS OF METHODS FOR
DETERMINING WEATHER AFFECTING ENEMY OPERATIONS; AND
(5) HANDBOOK PREPARATION. EXAMPLES OF THE TYPE
OF ANALYSES BEING PREPARED FOR THE TASKS CONCERNED
WITH MESOSCALE STUDIES, CASE STUDIES, AND WEATHER
AFFECTING ENEMY OPERATIONS ARE PRESENTED AND
DISCUSSED. NO ATTEMPT HAS BEEN MADE TO DRAW FINAL
CONCLUSIONS FROM THE EARLY STAGES OF THE
INVESTIGATIONS. HOWEVER, CERTAIN AREAS WHICH SEEM
TO HOLD PARTICULAR PROMISE HAVE BEEN NOTED. FOR
EXAMPLE, THE SIMPLE RELATIONSHIP OF TOTAL CLOUD COVER
(AS OBSERVED BY THE SATELLITE ONCE PER DAY) TO
AMOUNT OF PRECIPITATION OVER A SELECTED GEOGRAPHICAL
AREA SEEMS TO SHOW A HIGH CORRELATION. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-622 396

AEROMETRIC RESEARCH INC GOLETA CALIF

RELATIONSHIPS BETWEEN TIROS CLOUD PATTERNS AND AIR
MASS (WIND AND THERMAL) STRUCTURE, (U)

DESCRIPTIVE NOTE: FINAL REPT.,

SEP 65 61P

ELLOTT, ROBERT D. ; THOMPSON,

JOHN R. ;

CONTRACT: N189 18A 58870A

MONITOR: NWRP , 33-0965-109

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: LIMITED NUMBER OF COPIES CONTAINING
COLOR OTHER THAN BLACK AND WHITE ARE AVAILABLE UNTIL STOCK
IS EXHAUSTED. REPRODUCTIONS WILL BE MADE IN BLACK AND
WHITE ONLY.

DESCRIPTORS: (1) METEOROLOGICAL SATELLITES, CLOUD
COVER, (2) CLOUD COVER, AIR MASS ANALYSIS,
METEOROLOGICAL PARAMETERS, WIND, ATMOSPHERIC
TEMPERATURE, CLOUDS, AERIAL PHOTOGRAPHY,
RADIOSONDES, CLIMATOLOGY, WEATHER FORECASTING,
METEOROLOGICAL CHARTS, STATISTICAL ANALYSIS,
TABLES (U)

IN RECENT YEARS CONSIDERABLE EFFORT HAS BEEN
EXPENDED IN RELATING TIROS CLOUD PATTERNS TO
SYNOPTIC ANALYSIS WITH CERTAIN WORTHWHILE RESULTS.
HOWEVER, LITTLE EFFORT HAS BEEN MADE TO RELATE THE
CLOUD PATTERNS DIRECTLY TO THE AIR MASS STRUCTURE AND
ASSOCIATED PHYSICAL PROCESSES. THIS STUDY HAS BEEN
AIMED AT RELATING THE CLOUD PATTERNS TO WIND AT
VARIOUS LEVELS, WIND SHEAR, THERMAL ADVECTION,
VERTICAL DIFFERENCES THEREIN, AND AIR MASS STABILITY.
OVER 300 SHIP OR SHORELINE RADIOSONDE OBSERVATIONS
WERE USED IN CONJUNCTION WITH NEARLY SIMULTANEOUS
TIROS PHOTOGRAPHS TO DEVELOP STATISTICAL SUMMARIES
OF THESE PARAMETERS AND THEIR RELATIONSHIP TO CLOUD
PATTERNS. MODELS OF THE SYNOPTIC CLIMATOLOGY OF
TIROS CLOUD PATTERNS FOR A GENERALIZED CYCLONIC
SYSTEM ARE PRESENTED WHICH RELATE THE ABOVE
PARAMETERS TO THE CLOUD PATTERNS IN A WAY THAT IS
CONSISTENT WITH THE VARIOUS PHYSICAL PROCESSES THAT
GENERATE AND SPREAD CLOUD. STATISTICAL TABLES ARE
PROVIDED RELATING AIR MASS PARAMETERS TO SPECIFIC
CLOUD FORMS. THESE TABLES PRESENT THE INFORMATION
IN A VARIETY OF FORMS USEFUL TO THE FORECASTER.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-621 155

MIAMI UNIV FLA INST OF MARINE SCIENCE

MESO-SCALE SYNOPTIC ANALYSIS OF RADAR AND SATELLITE
METEOROLOGICAL DATA, (U)

DESCRIPTIVE NOTE: FINAL REPT.,

FEB 65 58P HISER, H. W. ; SENN, H. V. I

REPT. NO. ML-65167 ,8261-2

CONTRACT: CWB10622

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*METEOROLOGICAL SATELLITES, WEATHER
FORECASTING), (*METEOROLOGICAL RADAR, WEATHER
FORECASTING), (*WEATHER FORECASTING, METEOROLOGICAL
SATELLITES), METEOROLOGICAL PARAMETERS, CLOUD COVER,
INFRARED PHOTOGRAPHY, RADAR ECHO AREAS, TROPICAL
CYCLONES, PHOTOGRAMMETRY, FLORIDA (U)

NINE CASE STUDIES ARE PRESENTED IN WHICH RECTIFIED
TIROS PHOTOGRAPHS OF CLOUD PATTERNS OVER THE
SOUTH FLORIDA REGION ARE CORRELATED WITH SYNOPTIC
WEATHER DATA AND RADAR OBSERVATIONS OF PRECIPITATION
ON THE MESO SCALE. TIROS V, VI AND VII DATA
FROM AUGUST 1962 THROUGH OCTOBER 1963, INCLUDING
HURRICANE GINNY, WERE USED IN THE STUDY.
PREVIOUS WORK IN THE DEVELOPMENT OF AN OPTICAL
RECTIFICATION AND GRIDDING SYSTEM FOR SATELLITE
PHOTOGRAPHS IS SUMMARIZED. ALSO, THIS
RECTIFICATION SYSTEM IS FURTHER EVALUATED AS TO
ACCURACY AND APPLICATIONS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-619 192

COLORADO STATE UNIV FORT COLLINS DEPT OF ATMOSPHERIC
SCIENCE

NUMERICAL ANALYSIS OF TIROS RADIATION

OBSERVATIONS.

(U)

DESCRIPTIVE NOTE: TECHNICAL PAPER,

JUN 65 25p BAER, FERDINAND ; KAMM, WILLIAM

REPT. NO. TP-67

CONTRACT: DA28 043AMC01303E

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*METEOROLOGICAL SATELLITES, INFRARED
SCANNING), (*DATA PROCESSING SYSTEMS, WEATHER
FORECASTING), (*WEATHER FORECASTING, DATA PROCESSING
SYSTEMS), (*INFRARED SCANNING, METEOROLOGICAL
SATELLITES), INFRARED RADIATION, MAGNETIC RECORDING
SYSTEMS, METEOROLOGICAL CHARTS, NUMERICAL ANALYSIS,
PROGRAMMING (COMPUTERS)

(U)

IDENTIFIERS: TIROS

(U)

TIROS III RADIATION MEASUREMENTS ARE TAKEN FROM
BINARY TAPE, SELECTED FOR A GIVEN GEOGRAPHIC REGION,
ACCEPTED UNDER SATISFACTORY MODEL CONDITIONS AND
INTERPOLATED TO POINTS FOR WHICH NO FIX IS GIVEN.
THESE RAW DATA ARE THEN FIT TO A UNIFORMLY SPACED
SET OF GRID POINTS COVERING THE REGION OF INTEREST.
THE FITTING PROCEDURE IS EITHER A LEAST SQUARES
POLYNOMIAL FIT OR A WEIGHT FUNCTION FIT, THE CHOICE
DEPENDING ON THE NATURE OF THE DATA IN THE INFLUENCE
REGION ABOUT THE GRID POINT. A SAMPLE ANALYSIS AND
STATISTICAL INFORMATION ON DATA DISTRIBUTION ARE
PRESENTED TO SUGGEST THE EFFECTIVENESS OF THE
ANALYSIS PROCEDURE TO THE TYPE OF DATA UNDER
CONSIDERATION. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-618 883

NAVAL POSTGRADUATE SCHOOL MONTEREY CALIF
AN EXPERIMENT IN MODIFYING OBJECTIVE 500-MB CONTOUR
ANALYSES USING TIROS IX NEPHANALYSES. (U)

DESCRIPTIVE NOTE: MASTER'S THESIS,
65 69P CASIMES, THEODORE C. ; SWOR,
JERRY G. ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: AVAILABLE COPY WILL NOT PERMIT FULLY
LEGIBLE REPRODUCTION. REPRODUCTION WILL BE MADE IF
REQUESTED BY USERS OF DDC. COPY IS AVAILABLE FOR PUBLIC
SALE.

DESCRIPTORS: (WEATHER FORECASTING, METEOROLOGICAL
SATELLITES), (METEOROLOGICAL SATELLITES, WEATHER
FORECASTING), CLOUD COVER, AERIAL PHOTOGRAPHS,
VORTICES, WIND, VELOCITY, JET
STREAMS(METEOROLOGY) (U)

IDENTIFIERS: TIROS IX, THESES (U)

ONE OF THE NUMERICAL OPERATIONAL PRODUCTS OF THE
UNITED STATES NAVY FLEET NUMERICAL
WEATHER FACILITY (FNWF) IS THE OBJECTIVE
ANALYSIS OF 500-MB CONTOURS ON A HEMISPHERIC BASIS.
UP TO MID 1965. THIS ANALYSIS HAS BEEN ACCOMPLISHED
WITHOUT USE OF WEATHER-SATELLITE OBSERVATIONS. THE
PERIOD OF 14 THRU 20 FEBRUARY 1965 IS SELECTED AS
AN EXPERIMENTAL TEST PERIOD FOR THE PURPOSE OF
MODIFYING THE FNWF 500-MB ANALYSES IN THE SPARSE-
DATA REGION OF THE CENTRAL NORTH PACIFIC OCEAN
AT 00Z. SYNOPTIC SCALE PHENOMENA DEPICTED ON
TIROS IX NEPHANALYSES ARE USED AS BASIS FOR THE
ANALYSIS MODIFICATION. MODIFIED 24- AND 48-HOUR
PROGNOSES ARE MADE AND VERIFIED. RESULTS ARE
INTERPRETED IN LIGHT OF THE EXPERIMENTAL NATURE OF
THE PROJECT, RESTRICTED TIME INTERVAL SELECTED AND
EXPERIENCE LEVEL OF THE AUTHORS IN THE FIELD OF
SATELLITE METEOROLOGY. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-617 417

WASHINGTON UNIV SEATTLE

EVALUATION OF INFRARED EMISSION OF CLOUDS AND GROUND
AS MEASURED BY WEATHER SATELLITES. (U)

DESCRIPTIVE NOTE: DOCTORAL THESIS.

64 157p

KERN, CLIFFORD DALTON ;

CONTRACT: AF33 60A 1129

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•INFRARED RADIATION, METEOROLOGICAL
PHENOMENA), (•METEOROLOGICAL PHENOMENA, INFRARED
RADIATION), (•METEOROLOGICAL SATELLITES, INFRARED
SPECTROSCOPY), CLOUDS, TERRAIN, ATMOSPHERE,
THERMAL RADIATION, EMISSIVITY, MEASUREMENT,
GEOPHYSICS (U)

IDENTIFIERS: TIROS (U)

OF PRIME INTEREST ARE THE RADIATION DATA FROM THAT
PORTION OF THE INFRARED SPECTRUM KNOWN AS THE
ATMOSPHERIC WATER-VAPOR WINDOW, RANGING FROM ABOUT 8
TO 12 MICRONS. INFRARED SIGNALS RECEIVED BY WEATHER
SATELLITES AND AIRCRAFT DEPEND, IN CLEAR AIR, ON
SURFACE TEMPERATURE, ATMOSPHERIC INTERFERENCE AND
SURFACE EMISSIVITY. FOR THE LATTER, VERY DIFFERENT
DATA IN LITERATURE ARE FOUND FOR CLOUDS, WATER,
ROCKS, ETC. IN THIS REPORT CORRECT EMISSIVITY DATA
WERE SOUGHT IN THREE WAYS: (1) REFLECTIVITY OF
POLISHED ROCK SAMPLES WAS TESTED IN AN INFRARED
SPECTROGRAPH FOR 5-16 MICRONS WAVELENGTH, USING
KIRCHHOFF'S LAW THIS METHOD YIELDED EMISSIVITIES
FOR NEAR NORMAL INCIDENCE. (2) USING AN 8-13
MICRONS SENSITIVE RADIOMETER AND AN AGGREGATE, CALLED
EMISSIVITY BOX, THE EMISSIVITY OF MANY SURFACES WAS
MEASURED DIRECTLY. (3) A SUMMER NOON TIME FLIGHT
OF TIROS OVER THE MEDITERRANEAN AND THE SAHARA
WAS EVALUATED. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-616 351

ARACON GEOPHYSICS CO CONCORD MASS
OPERATIONAL USE OF TIROS RADIATION MEASUREMENTS. (U)
DESCRIPTIVE NOTE: FINAL REPT. FOR 16 MAR 64-15 MAR 65.

APR 65 63P SHERR, PAUL E. ; WEXLER,
RAYMOND ;
REPT. NO. 9GS-4
CONTRACT: AF19 628 4074
PROJ: 6698
TASK: 669803
MONITOR: AFCLL , 65-193

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (METEOROLOGICAL PARAMETERS,
METEOROLOGICAL SATELLITES), (METEOROLOGICAL
SATELLITES, METEOROLOGICAL PARAMETERS), RADIOMETERS,
METEOROLOGICAL RADAR, WEATHER FORECASTING,
OPERATIONS RESEARCH (U)
IDENTIFIERS: TIROS (U)

TIROS RADIATION DATA ARE SHOWN TO BE OF SIGNIFICANT
OPERATIONAL VALUE IF THEY CAN BE MADE AVAILABLE IN
REALTIME. OPERATIONAL FEATURES INCLUDE: (1)
RECOGNITION OF SYNOPTIC WEATHER PATTERNS WHICH MAY
LEAD TO BETTER ANALYSIS OVER DATA SPARSE AREAS.
LONG BANDED PATTERNS OF FRONTS AND HOOK SHAPED
PATTERNS ASSOCIATED WITH MIDTROPOSPHERIC SYSTEMS ARE
PROMINENT FEATURES WHICH MAY READILY BE OBSERVED.
(2) IN THE MESOSCALE, THE RADIATION PATTERNS
INDICATE THE EXISTENCE OF MIDDLE AND HIGH CLOUDINESS
WHICH MAY BE RELATED TO FRONTAL LIFTING OR VORTICITY
AND THERMAL ADVECTION, FINER DETAIL SUCH AS SHORT
WAVES MAY BE IDENTIFIED. (3) A MARKED INCREASE
IN THE CLOUD SYSTEM SIZE OR HEIGHTS INDICATE PROBABLE
INTENSIFICATION OF A CYCLONIC SYSTEM, A GENERAL
INCREASE OF COLD AREAS MAY SHOW A TENDENCY TOWARD
MORE MERIDIONAL FLOW IN THE MID-TROPOSPHERE, THE
INTEGRATED ANALYSIS OF THE PICTURES, CHANNEL 2 AND
3 OBSERVATIONS PROVIDE ADVANTAGES WHICH INCLUDE
BETTER INTERPRETATION AND INSIGHTS INTO THE CHARACTER
AND GROWTH STAGE OF CYCLONIC DISTURBANCES, TIROS
PHOTOGRAPHS, CHANNELS 2 AND 3 MEASUREMENTS CLEARLY
SHOW THE MESOSCALE FEATURES OF A THUNDERSTORM COMPLEX
OVER FLORIDA SUCH AS REGIONS OF ACTIVE GROWTH,
ANVIL BLOWOFF AND PROBABLE RAIN AREAS, AS
CORROBORATED BY RADAR OBSERVATIONS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-615 924

IBM CORP CAMBRIDGE MASS

ATMOSPHERIC DENSITY DETERMINATION USING THE SATELLITE
ANALYSIS MONITOR PROGRAM (SAM). (U)

DESCRIPTIVE NOTE: FINAL REPT.,

DEC 64 133P BRAMSON, A. S. FOXWORTHY, V. L. :

CONTRACT: AF19 628 4043

PROJ: 6690

TASK: 669005

MONITOR: AFRL , 65-25

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-606 698.

DESCRIPTORS: (UPPER ATMOSPHERE, DENSITY),
(METEOROLOGICAL SATELLITES, MONITORS),
SATELLITES (ARTIFICIAL), ORBITAL TRAJECTORIES,
ATMOSPHERE MODELS, PROGRAMMING (COMPUTERS), DATA
PROCESSING SYSTEMS, MATHEMATICAL ANALYSIS,
PROGRAMMING LANGUAGES (U)

IDENTIFIERS: SAM (U)

ATMOSPHERIC DENSITIES MAY BE COMPUTED FROM
SATELLITE OBSERVATIONS BY THE FOLLOWING PROCEDURES:
(1) OBTAIN ACCURATE ORBITAL ELEMENTS FROM A
DIFFERENTIAL ORBIT CORRECTION PROCEDURES; (2) FIT
EACH ELEMENT AS A FUNCTION OF TIME; (3) ANALYZE
THE RESIDUALS IN MEAN ANOMALY; (4) COMPUTE THE
RATE OF CHANGE OF THE ANOMALISTIC PERIOD; (5)
DERIVE DENSITY DATA BY INTEGRATING STERNE'S
FORMULA IN WHICH JACCHIA'S MODEL ATMOSPHERE IS
USED. THIS REPORT DESCRIBES A COMPUTER PROGRAM
WHICH HAS BEEN WRITTEN TO CARRY OUT THESE PROCEDURES.
IT IS BELIEVED THAT THIS PROGRAM REPRESENTS THE
FIRST ATTEMPT AT AN AUTOMATIC COMPUTATION OF
ATMOSPHERIC DENSITY AT PERIGEE HEIGHTS IN PARTICULAR,
AND MAY ALSO REPRESENT AN ADVANCE IN THE STATE-OF-THE-
ART OF AUTOMATIC DATA PROCESSING IN GENERAL.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-615 405

LAND-AIR INC POINT MUGU CALIF

ON A METHOD OF INVESTIGATING THE IONOSPHERE WITH THE
AID OF AN ARTIFICIAL SATELLITE OF THE EARTH. (U)

DESCRIPTIVE NOTE: LANGUAGE TRANS. SERIES,

APR 61 23P ALPERT, YA L. :

REPT. NO. LTS-5

CONTRACT: N123 61756 19425A PMR

MONITOR: TT , 61-19928

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: O METODE ISSLEDOVANIYA IONOSFERY S
POMOSHCH'YU ISKUSTVENNOGO SPUTNIKA ZEMLI, TRANS. OF
USPEKH FIZICHESKIKH NAUK (USSR) V64 N1 P3-14 1958
OTHER TRANS. ARE AVAILABLE FROM LC OR SLA AS TT-
5912051, AND TT-59-20277, AND AS PB-141 482T.

DESCRIPTORS: (*IONOSPHERE, METEOROLOGICAL SATELLITES),
(*METEOROLOGICAL SATELLITES, IONOSPHERE), RADIO SIGNALS,
SATELLITES (ARTIFICIAL), DOPPLER EFFECT, ELECTRON
DENSITY, IONOSPHERIC DISTURBANCES, IONIZATION (U)

A METHOD IS CONSIDERED FOR INVESTIGATING THE
IONOSPHERE WITH THE AID OF ARTIFICIAL SATELLITES OF
THE EARTH WHICH MAKES IT POSSIBLE TO OBTAIN DATA ON
THE PARAMETERS OF THE IONOSPHERE. THESE DATA ARE
OF GREAT IMPORTANCE FOR THE INTERPRETATION OF THE
STRUCTURE OF THE IONOSPHERE AND FOR THE DETERMINATION
OF THE CAUSES FOR VARIOUS PHENOMENA OBSERVED IN THE
IONOSPHERE. EQUIVALENT DATA CANNOT BE OBTAINED AT
THE PRESENT TIME BY ANY OTHER KNOWN MEANS THAN THOSE
SUGGESTED HERE. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-614 927

STANFORD RESEARCH INST MENLO PARK CALIF

STUDIES OF DAYTIME RADIATION FROM TIROS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. FOR 1 APR 63-1 FEB 65,
FEB 65 32P VIEZEE, WILLIAM ; DAVIS, PAUL

A, ;

CONTRACT: AF19 62A 2777

PROJ: 6698 SRJ4448

TASK: 669803

MONITOR: AFRL . 65-160

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (SOLAR RADIATION, ALBEDO (ASTRONOMY)),
(METEOROLOGICAL SATELLITES, SOLAR RADIATION), SNOW,
TEMPERATURE INVERSION, CLOUD COVER, HEIGHT FINDING,
CORRELATION TECHNIQUES, METEOROLOGY, ATMOSPHERE, OPTICAL
PROPERTIES (U)

IDENTIFIERS: TIROS (U)

ANALYSIS OF A SAMPLE OF WINTERTIME DATA FROM TIROS
IV OVER THE UNITED STATES SHOWS THAT SNOW COVER
AND A LOWLEVEL TEMPERATURE INVERSION TEND TO MASK THE
RELATIONSHIP BETWEEN CLOUDINESS AND CHANNEL 2 (8-
12 MICRONS) TEMPERATURE. HOWEVER, BOTH CHANNEL
3 (0.2-6.0 MICRONS) AND CHANNEL 5 (0.55-0.75
MICRON) DESCRIBE THE CLOUDINESS WELL. FOR AREAS
WITH OVERCAST STRATIFORM CLOUDINESS, DATA FROM THE
SOLAR CHANNELS OF TIROS II AND IV ARE COMPARED
WITH REPORTS OF CLOUD-CEILING HEIGHT. HIGH CLOUDS
AND LOW-BASED CLOUDS CAN BE READILY DISTINGUISHED
FROM THE RADIATION DATA ON THE BASIS OF LOW AND HIGH
ALBEDOS. RESPECTIVELY. HOWEVER, NO DISTINCT
RELATION BETWEEN ALBEDO AND CEILING HEIGHT IS EVIDENT
FOR THE INTERMEDIATE RANGE OF ALBEDOS (40 TO 60
PERCENT FOR CHANNEL 5 AND 30 TO 50 PERCENT FOR
CHANNEL 3). VARIATIONS IN THE SOLAR REFLECTANCE
MEASUREMENTS WITH CHANGES IN THE VIEWING GEOMETRY
COULD NOT BE DETERMINED FROM A SAMPLE OF CLOSED-MODE
DATA BECAUSE OF APPARENT ERRORS IN RECTIFICATION. A
BRIEF RESUME OF CONTRACTUAL WORK DESCRIBED IN
PREVIOUS SCIENTIFIC REPORTS IS GIVEN. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-613 770
AIR FORCE CAMBRIDGE RESEARCH LABS L G HANSCOM FIELD
MASS
ANALYSIS AND INTERPRETATION OF TIROS II INFRARED
RADIATION MEASUREMENTS, (U)
DESCRIPTIVE NOTE: REVISED ED.,
MAY 64 18P HAWKINS, R. S. ;
REPT. NO. AFCRL 65-80 ERP-81
PROJ: 6698
TASK: 6698 03

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PUB. IN JOURNAL OF APPLIED
METEOROLOGY (U. S.) V3 N5 P564-72 OCT 1964. COPIES
NOT AVAILABLE TO DDC OR CLEARINGHOUSE CUSTOMERS.
REVISION OF MANUSCRIPT SUBMITTED 6 MAR 64.

DESCRIPTORS: (*METEOROLOGICAL SATELLITES, INFRARED
SCANNING), (*INFRARED RADIATION, GEOPHYSICS), AIR MASS
ANALYSIS, NORTH AMERICA, CLOUD COVER, WEATHER
FORECASTING, RADIOMETERS (U)
IDENTIFIERS: TIROS (U)

INFRARED RADIATION DATA OBTAINED BY THE TIROS II
METEOROLOGICAL SATELLITES ARE DISCUSSED IN RELATION
TO A FRONTAL SYSTEM OVER NORTH AMERICA. IT
APPEARS FROM THIS STUDY THAT THE RADIATION DATA MAY
BE USEFUL NOT ONLY FOR DETERMINING THE LOCATION,
MOTION AND DEVELOPMENT OF FRONTAL SYSTEMS BUT ALSO
FOR OBTAINING INFORMATION ON THE STRUCTURE OF FRONTAL
ZONES. A DETAILED ANALYSIS IS MADE OF DATA FOR A
CLOUDY COLD FRONT IN REGARD TO CLOUD AND MOISTURE
DISTRIBUTIONS. THE INFRARED DATA DEFINE THE
REGIONS OF CONVECTIVE ACTIVITY QUITE ACCURATELY.
FOR THE CASE STUDIED, THE DATA SUGGEST A RELATIVELY
DRY REGION IN THE UPPER TROPOSPHERE ABOVE THE SURFACE
FRONT. POTENTIALITIES OF THE DATA ARE DISCUSSED.
POSSIBLE EXPLANATIONS FOR REPORTED DISCREPANCIES
BETWEEN THE SATELLITE DATA AND CONVENTIONAL DATA ARE
PRESENTED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-613 281

HAWAII INST OF GEOPHYSICS HONOLULU

TIROS OBSERVATIONS OF TYPHOON FORMATION, (U)

JAN 65 76P SHIOMA, MICHIO ISADLER, JAMES

C. I

REPT. NO. SR-1, HIG-65-3

CONTRACT: AF19 62A 3860

PROJ: 6698

TASK: 669802

MONITOR: AFCRL, 65-24

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DESCRIPTORS: (1) METEOROLOGICAL SATELLITES, AIR MASS
ANALYSIS), (1) TROPICAL CYCLONES, AIR MASS ANALYSIS),
(1) AIR MASS ANALYSIS, TROPICAL CYCLONES), (1) WEATHER
FORECASTING, METEOROLOGICAL SATELLITES), PHOTOGRAPHS,
CLOUD COVER, VORTICES, MARINE METEOROLOGY, TROPICAL
REGIONS (U)

IDENTIFIERS: TIROS (U)

DATA FROM CONVENTIONAL SOURCES, INCLUDING AIRCRAFT
RECONNAISSANCE, ARE UTILIZED IN AN EFFORT TO
INTERPRET AND DETERMINE THE UTILITY OF METEOROLOGICAL
SATELLITE PHOTOGRAPHS DURING THE IMPORTANT EARLY
PHASES OF TROPICAL CYCLONE DEVELOPMENT AND
INTENSIFICATION TO TYPHOON INTENSITY. THIS STUDY
INVOLVES THREE CYCLONES. TWO DEVELOPED FROM
VORTICES EMBEDDED IN THE LOW-LEVEL MONSOON TROUGH AND
THE THIRD FROM AN INITIAL VORTEX IN THE UPPER-
TROPOSPHERIC TROUGH. THE INITIAL VORTICES ARE
EVIDENT IN THE WIND FIELD BEFORE BECOMING
RECOGNIZABLE IN THE TIROS PICTURES. THEY BECOME
APPARENT AS VORTICES IN THE PICTURES BEFORE THEY
REACH TROPICAL STORM INTENSITY. RECOGNIZABLE
CHANGES OCCUR IN THE TIROS VIEWS AS THE STORMS
INTENSIFY TO TYPHOON INTENSITY. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-611 960

NATIONAL RESEARCH COUNCIL OF CANADA OTTAWA (ONTARIO)
TELEVISION DISPLAY FOR NIMBUS-TIROS PICTURE
TRANSMISSION SYSTEM, INFORMATION OBTAINED FROM
WEATHER SATELLITES REQUIRES RAPID PROCESSING TO BE
USEFUL IN METEOROLOGICAL FORECASTING, (U)

64 4P RICHARDS, R. S. ; BRADLEY, J. B. ;
REPT. NO. NRC-8315

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PUB. IN MONO (PAPER) PRESENTED AT
THE CANADIAN SYMPOSIUM ON COMMUNICATIONS (NO.3)
N.P., N.D. (COPIES AVAILABLE ONLY TO DDC USERS).

DESCRIPTORS: (*METEOROLOGICAL SATELLITES, DATA
TRANSMISSION SYSTEMS), (*WEATHER COMMUNICATIONS,
TELEVISION DISPLAY SYSTEMS), (*TELEVISION DISPLAY
SYSTEMS, WEATHER COMMUNICATIONS), CLOUD COVER, PICTURES,
FACSIMILE TRANSMISSION, MAGNETIC RECORDING SYSTEMS,
TELEVISION EQUIPMENT, WIRING DIAGRAMS, WEATHER
FORECASTING (U)

IDENTIFIERS: NIMBUS, TIROS (U)

THERE WERE TWO PRINCIPAL OBJECTS IN VIEW: FIRST,
TO PROVIDE THE METEOROLOGICAL SERVICE WITH THE
EARLIEST OPPORTUNITY TO STUDY THESE DIRECTLY
TRANSMITTED PICTURES, AND, SECOND, TO EXPLORE THE
POSSIBILITIES OF KINESCOPE-CAMERA DISPLAY OF DATA AS
OPPOSED TO FACSIMILE DISPLAY, WITH A VIEW TO POSSIBLE
PRODUCTION BY CANADIAN INDUSTRY FOR CANADIAN AND
FOREIGN USE. ONE OF THE ADVANTAGES ATTENDANT ON
THE USE OF MAGNETIC TAPE AND KINESCOPE IS THAT THE
REPRODUCING ELECTRON BEAM CAN BE PROGRAMMED, AS IT
TURNED OUT THE CAMERA TUBE IS SENSITIVE TO CHANGES IN
THE MAGNETIC FIELD RESULTING FROM THE SPIN OF THE
SATELLITE RELATIVE TO THE EARTH'S MAGNETIC FIELD.
THIS EFFECT IMPOSES A REGULAR DEFLECTION ON THE
READING BEAM, LEADING TO A 'SCALLOPING' OF THE
RECEIVED PICTURE, IT IS POSSIBLE, BY THE ADDITION
OF AN OPPOSING DEFLECTION DURING THE PLAY BACK TO
PROVIDE SOME CANCELLATION OF THIS EFFECT. IT IS
CLAIMED THAT THE FLEXIBILITY, RELIABILITY AND
SIMPLICITY OF THE TAPE-RECORDER /KINESCOPE
COMBINATION HAVE BEEN PROVED, AND SUFFICIENT
EXPERIENCE HAS BEEN OBTAINED TO ENABLE A GREATLY
IMPROVED KINESCOPE TO BE DESIGNED. (U)

UNCLASSIFIED

DO REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-609 767

STANFORD RESEARCH INST MENLO PARK CALIF
ANALYSIS OF DAYTIME RADIATION DATA FROM TIROS
IV.

(U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT. NO. 4,
DEC 64 37p VIEZEE, WILLIAM ; DAVIS, PAUL

A. 1

CONTRACT: AF19 62R 2777

PROJ: 6698 ,4448

TASK: 669803

MONITOR: AFRL . 64 905

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*METEOROLOGICAL SATELLITES, SOLAR
RADIATION), (*SOLAR RADIATION, ALBEDO (ASTRONOMY)),
(*CLOUD COVER, ALBEDO (ASTRONOMY)), INFRARED RADIATION,
SCATTERING, REFLECTION, ANALYSIS, RADIOMETERS, PACIFIC
OCEAN

(U)

IDENTIFIERS: TIROS

(U)

A SAMPLE OF WINTER TIME DATA FROM THE SOLAR
CHANNELS OF TIROS IV OVER THE EASTERN PACIFIC IS
EXAMINED TO DETERMINE THE DEPENDENCE OF THE ALBEDO ON
THE ANISOTROPY OF SCATTERED AND REFLECTED SOLAR
RADIATION. THE ANALYSIS SHOWS A SIGNIFICANT
INCREASE IN CLOUD ALBEDO WHEN THE SCATTERING ANGLE
DECREASES BETWEEN 90 AND 53 DEGREES. DATA COLLECTED
FROM THE TWO SOLAR CHANNELS OF TIROS IV REVEAL A
COMPATIBILITY SUPERIOR TO THAT OF SIMILAR DATA FROM
THE EARLY ORBITS OF TIROS III. SYNOPTIC-SCALE
CLOUD PATTERNS SHOWN IN THE PHOTOGRAPHS FROM TIROS
IV ARE IDENTIFIED IN THE PATTERN ANALYSES OF
COINCIDENT RADIATION DATA FROM CHANNELS 2, 3, AND
5. DATA FROM THE SOLAR CHANNELS FROM THREE
SEPARATE ORBITS, OVER BACKGROUNDS WITH VARYING
CLOUDINESS, ARE EXAMINED FOR DEGRADATION IN
INSTRUMENTAL RESPONSE, EXCEPT POSSIBLY FOR THE
FIRST FEW ORBITS. NO PHYSICAL INTERPRETATION CAN BE
ATTACHED TO VARIATIONS OF THE LOW-FLUX DATA FROM THE
SOLAR CHANNELS. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-609 493

ARACON GEOPHYSICS CO CONCORD MASS
PRACTICAL INTERPRETATION OF METEOROLOGICAL SATELLITE
DATA, (U)

DESCRIPTIVE NOTE: FINAL REPT.,

SEP 64 427P WIDGER, WILLIAM K. , JR. ; SHERR,

PAUL E. ; ROGERS, C. W. C. I

REPT. NO. ARA-9219-12

CONTRACT: AF19 628 2471

PROJ: 6698

TASK: 669802

MONITOR: AFCL , 64 807

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: LEGIBILITY OF THIS DOCUMENT IS IN PART
UNSATISFACTORY. REPRODUCTION HAS BEEN MADE FROM THE BEST
AVAILABLE COPY.

DESCRIPTORS: (METEOROLOGICAL SATELLITES, WEATHER
FORECASTING), (WEATHER FORECASTING, METEOROLOGICAL
SATELLITES), SATELLITES (ARTIFICIAL), AERIAL
PHOTOGRAPHY, CLOUD COVER, AIR MASS ANALYSIS, TROPICAL
CYCLONES, INFRARED SCANNING, WEATHER COMMUNICATIONS,
PHOTOGRAPHS, METEOROLOGICAL CHARTS, ANALYSIS,
METEOROLOGY (U)

THIS REPORT ATTEMPTS TO CONSOLIDATE WITHIN A SINGLE
DOCUMENT INFORMATION PERTINENT TO THE OPERATIONAL
INTERPRETATION, AS REGARDS WEATHER ANALYSIS AND
FORECASTING, OF METEOROLOGICAL SATELLITE DATA.
ACCORDINGLY, IT EXTRACTS, INTEGRATES, AND
SUMMARIZES MATERIAL AVAILABLE IN THE LITERATURE AND
IN TECHNICAL REPORTS UP THROUGH EARLY 1964. THE
REPORT IS WRITTEN SPECIFICALLY FOR THE USE OF AIR
WEATHER SERVICE FIELD FORECASTERS. TOPICS
CONSIDERED INCLUDE THE COVERAGE, SCALE, AND
RESOLUTION OF THE SATELLITE DATA, OPERATIONALLY
AVAILABLE DATA FORMATS, COORDINATION WITH OTHER
METEOROLOGICAL DATA, CLOUD TYPE INTERPRETATION, KEY
FEATURES OBSERVED IN THE PICTURES, EXTRATROPICAL
VORTEX INTERPRETATIONS, OTHER SYNOPTIC AND MESOSCALE
FEATURES, INTERPRETATIONS OF TROPICAL DATA, AND
CONTRIBUTIONS OF THE SATELLITE DATA TO WEATHER
FORECASTING. PROCEDURES FOR THE INTEGRATION OF
SATELLITE AND CONVENTIONAL DATA AND ANALYSES, AND FOR
THE USE OF SATELLITE DATA TO PROVIDE IMPROVED
SYNOPTIC ANALYSES, ARE DEVELOPED AND PRESENTED.
GUIDANCE AS REGARDS THE OPERATIONAL INTERPRETATION,
APPLICATION, AND VALUE OF INFRARED DATA FOR
ATMOSPHERIC WINDOWS IS PROVIDED, LOOKING TOWARD THE
TIME WHEN SUCH DATA ARE MADE AVAILABLE TO THE FIELD. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-608 095

METEOROLOGICAL SATELLITE LAB WEATHER BUREAU WASHINGTON D
C

TIROS PHOTOGRAPHS AND MOSAIC SEQUENCES OF TROPICAL
CYCLONES IN THE WESTERN PACIFIC DURING 1962, (U)

JUL 64 154P FETT, ROBERT W. :

REPT. NO. MSL-32

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: LEGIBILITY OF THIS DOCUMENT IS IN PART
UNSATISFACTORY. REPRODUCTION HAS BEEN MADE FROM BEST
AVAILABLE COPY.

DESCRIPTORS: (TROPICAL CYCLONES, PHOTOGRAPHS);
(METEOROLOGICAL SATELLITES, PHOTOGRAPHS), STORMS,
PACIFIC OCEAN, PHOTOGRAPHIC ANALYSIS, METEOROLOGICAL
PARAMETERS, METEOROLOGICAL CHARTS, WEATHER
FORECASTING (U)

IDENTIFIERS: TIROS (U)

THIS REPORT CONTAINS AN EXTENSIVE AND NEARLY
COMPLETE SERIES OF THE TIROS VIEWS OF THE MAJOR
TROPICAL CYCLONES OF THE WESTERN PACIFIC DURING
1962. THE REPORT IS INTENDED TO BE MORE THAN A
CATALOGUE OF THE VARIOUS VIEWS OBTAINED. THE
RELATIONSHIP OF THE APPEARANCE OF THE CYCLONE TO FLOW
PATTERNS SUGGESTED BY CIRRUS STRIATIONS AND THE
DIRECTION OF SHEAR OF CUMULONIMBUS ANVILS, FOR
EXAMPLE, IS DISCUSSED. THE QUESTION OF DEVELOPMENT
AND CHANGES IN APPEARANCE WITH CHANGES IN INTENSITY
ARE ALSO DESCRIBED. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-607 389

RAND CORP SANTA MONICA CALIF

DETECTION OF MESOSPHERIC CLOUDS FROM A SATELLITE.

(U)

MAY 62 12P

DIERHANDJIAN, DIRAN ;

REPT. NO. P-2579

CONTRACT: AF49 638 700

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE INTERNATIONAL SYMPOSIUM ON ROCKET AND SATELLITE METEOROLOGY, W.M.O., I.U.G.G., AND COSPAR, WASHINGTON, D. C., 23-25 APR 62.

DESCRIPTORS: (*CLOUDS, METEOROLOGICAL SATELLITES), (*METEOROLOGICAL SATELLITES, CLOUDS), NOCTILUCENT CLOUDS, PHOTOMETERS, POLAR ORBIT TRAJECTORIES, PARTICLES, POLARIZATION, METEOROLOGICAL PHENOMENA, INTENSITY

(U)

THE POSSIBILITY OF THE PHOTOMETRIC DETECTION OF MESOSPHERIC CLOUDS FROM A LOW POLAR ORBIT SATELLITE IS DISCUSSED. AS AN EXAMPLE, IT IS SHOWN THAT NOCTILUCENT CLOUDS, UNDER CERTAIN CONDITIONS, SHOULD BE EASILY DETECTABLE AT LATITUDES AND SEASONS WHICH ARE NOT SUITED TO GROUND BASED OBSERVATIONS. A SIMPLE SATELLITE EXPERIMENT IS DESCRIBED WHICH WOULD ALSO YIELD SOME DATA ON THE NATURE OF THE CLOUD PARTICLES. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-605 924

ARMY ELECTRONICS LABS FORT MONMOUTH N J
ENGINEERING EVALUATION OF THE METEOROLOGICAL
SATELLITE GROUND RECEIVING SYSTEM, (U)

MAY 64 IV PETERSON, ARNOLD C. :

TASK: 1AO 25001A126 01

MONITOR: USAEL , TR2460

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (METEOROLOGICAL SATELLITES, GROUND SUPPORT
EQUIPMENT), (TELEMETERING RECEIVERS, GROUND SUPPORT
EQUIPMENT), CLOUD COVER, PICTURES, FACSIMILE
TRANSMISSION, FACSIMILE EQUIPMENT, PERFORMANCE
(ENGINEERING), METEOROLOGY (U)

THIS REPORT IS AN EVALUATION OF THE PERFORMANCE OF
THE METEOROLOGICAL SATELLITE GROUND RECEIVING
SYSTEM (MSGRS) FOR ARMY USE, BASED ON A NUMBER
OF CLOUD-COVER AUTOMATIC PICTURE TRANSMISSIONS
(APT) RECEIVED FROM THE TIROS VIII SATELLITE.
FROM THE PICTURE RECEIVED AND ANALYZED, IT WAS
DETERMINED THAT THE PICTURES, ON PC ARDID FILM,
WERE OF EXCELLENT CLARITY AND DEFINITION TO BE USED
FOR CLOUDCOVER FORMATION ANALYSIS. THE SENSITIVITY
AND GAIN OF THE MSGRS IS MORE THAN SUFFICIENT TO
RECEIVE EXCELLENT PICTURES DURING THE SATELLITE'S
ORBIT FROM ALMOST HORIZONTO-HORIZON, WHERE THE
MAXIMUM RANGE APPROACHES 2000 MILES. COMMENTS ON
THE OPERATION OF THE ANGULAR TRACKING AND PICTURE-
PROCESSING PORTIONS OF THE SYSTEM ARE INCLUDED IN THE
REPORT. ALSO DISCUSSED ARE CORRECTED PROBLEM
AREAS, BASED ON A DETERMINED MINIMUM USABLE SIGNAL
LEVEL AND SIGNAL-TO-NOISE RATIO FOR A MINIMUM
ACCEPTABLE PICTURE. AN ANALYSIS WAS MADE TO DETERMINE
THE POSSIBILITY OF REPLACING THE HELICAL ROTATABLE
ANTENNA WITH A FIXED-ANTENNA SYSTEM, CONSISTING OF A
1/4 LAMBDA STUB AND AN EQUIANGULAR SPIRAL ANTENNA.
FROM BOTH THEORETICAL DATA AND PICTURES RECEIVED
USING THE FIXED-ANTENNA SYSTEM, THIS ANTENNA
ARRANGEMENT APPEARS TO BE FEASIBLE. (AUTHOR) (U)

UNCLASSIFIED

ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-604 817

HAND CORP SANTA MONICA CALIF
REVIEW OF 'PROCEEDINGS OF THE INTERNATIONAL
METEOROLOGICAL SATELLITE WORKSHOP, NOVEMBER 13-22,
1961' U. S. GOVERNMENT PRINTING OFFICE, WASHINGTON,
D. C., 1962, (U)

SEP 62 6P KELLOGG, W. W. ;
REPT. NO. P-2635

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE; PAPER PREPARED FOR PUBLICATION IN
TRANSACTIONS OF THE AMERICAN GEOPHYSICAL UNION.

DESCRIPTORS: (*METEOROLOGICAL SATELLITES, SYMPOSIA).
WEATHER FORECASTING, SCIENTIFIC PERSONNEL, REPORTS,
REVIEWS, METEOROLOGY (U)

THE TALKS, AND MUCH OF THE DISCUSSION FOLLOWING THE
TALKS, ARE ALL INCLUDED IN THE PROCEEDINGS, ALONG
WITH AN APPENDIX GIVING FURTHER DETAILS ON HOW THE
TIROS SYSTEM OPERATES. THE PROCEEDINGS SERVES
AS AN EXCELLENT SOURCE BOOK OF INFORMATION ON U. S.
WEATHER SATELLITES AND THEIR USE, AND A BRIEF
DESCRIPTION OF WHAT THE FUTURE HOLDS IF ALL GOES
ACCORDING TO PLAN. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-604 813

RAND CORP SANTA MONICA CALIF

SATELLITE WEATHER RECONNAISSANCE,

(U)

JUN 58

22P

GREENFIELD, S. M. IKELLOGG, W. W.

REPT. NO. P-1402

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED FOR PUB. IN ASTRONAUTICS.

DESCRIPTORS: (•METEOROLOGICAL SATELLITES, WEATHER
FORECASTING), (•WEATHER FORECASTING, METEOROLOGICAL
SATELLITES), METEOROLOGY, RECONNAISSANCE SATELLITES,
CLOUD COVER, PHOTOGRAPHY, MATHEMATICS, MEASUREMENT,
MOISTURE, TEMPERATURE, OZONE, SOLAR RADIATION,
FEASIBILITY STUDIES

(U)

VARIOUS ASPECTS OF WEATHER RECONNAISSANCE BY
SATELLITES INCLUDING LIMITATIONS, CAPABILITIES
RELATIVE TO PRESENT METHODS, AND GROWTH POTENTIAL ARE
DISCUSSED. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-602 140

ARMY ELECTRONICS LABS FORT MONMOUTH N J

AN EVALUATION OF TIROS VIII METEOROLOGICAL DATA FOR
ARMY APPLICATIONS (U)

MAR 64 19P RICHARDS, WILLIAM J. :

TASK: 1A0 25001A126 01

MONITOR: AELRUL TR2439

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*METEOROLOGICAL SATELLITES, AERIAL
PHOTOGRAPHS), (*PHOTOGRAMMETRY, SATELLITES (ARTIFICIAL),
MAPPING, PHOTOGRAPHIC ANALYSIS, WEATHER FORECASTING,
METEOROLOGICAL PARAMETERS, TELEMETERING DATA, POSITION
FINDING, CLOUDS, STORMS, TELEVISION EQUIPMENT, PHOTO
INTERPRETATION, PHOTOGRAPHIC PROCESSING EQUIPMENT,
WEATHER COMMUNICATIONS (U)

IDENTIFIERS: TIROS VIII, AUTOMATIC PICTURE-TAKING
(APT) (U)

EXPERIENCE GAINED WITH TIROS VIII AUTOMATIC
PICTURE-TAKING (APT) SYSTEM IS DESCRIBED, AND
RESULTS ARE EVALUATED IN TERMS OF METEOROLOGICAL
REQUIREMENTS OF THE FIELD ARMY. IT IS CONCLUDED
THAT DESPITE CERTAIN LIMITATIONS IN THE FIRST
EXPERIMENTAL VERSION, THE APT SYSTEM OFFERS A
VALUABLE ADDITION TO THE ARMY'S METEOROLOGICAL
FACILITIES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-601 905

HAWAII INST OF GEOPHYSICS HONOLULU

THE UTILIZATION OF TIROS PICTURES TO SOME SELECTED
STUDIES OF TROPICAL METEOROLOGY. (U)

DESCRIPTIVE NOTE: FINAL REPT.

APR 64 18p TAYLOR, RONALD C. I

REPT. NO. 64 5

CONTRACT: AF19 604 A156

PROJ: 6698

TASK: 669802

MONITOR: AFCL 64 327

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (CYCLONES, METEOROLOGICAL SATELLITES),
(METEOROLOGICAL SATELLITES, PHOTOGRAPHS), MALAYA,
PRECIPITATION, DIURNAL VARIATIONS, SEA BREEZE, TERRAIN,
CLIMATE, INDIAN OCEAN, PACIFIC OCEAN, WIND, WEATHER
STATIONS, SEA WATER, HURRICANES, STORMS, CLOUDS, JET
STREAMS (METEOROLOGY), TROPICAL REGIONS, METEOROLOGICAL
BALLOONS (U)
IDENTIFIERS: TIROS (U)

CONTENTS: (1) THE SUBTROPICAL CYCLONE; (2)
CLOUD PATTERNS IN A TROPICAL CYCLONE IN THE
ARABIAN SEA VIEWED BY TIROS I METEOROLOGICAL
SATELLITE; (3) DIURNAL VARIATION OF SUMMER
RAINFALL OVER MALAYA; (4) TROPICAL CYCLONES OF
THE EASTERN NORTH PACIFIC AS REVEALED BY
TIROS OBSERVATIONS; AND (5) TIROS OBSERVATIONS
OF THE SUMMER CIRCULATION AND WEATHER PATTERNS OF THE
EASTERN NORTH PACIFIC. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-601 864

STANFORD RESEARCH INST MENLO PARK CALIF
VARIATIONS OF SATELLITE DAYTIME RADIATION DATA WITH
VIEWING GEOMETRY. (U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT. NO. 3.

JUN 64 43P VIEZEE, W. ; MANCUSO, R. L. ;

DAVIS, P. A. ;

CONTRACT: AF14 628 2777

PROJ: 6698 AND 4448

TASK: 669803

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*METEOROLOGICAL SATELLITES, RADIATION
MEASUREMENT SYSTEMS), (*RADIATION MEASUREMENT SYSTEMS,
METEOROLOGICAL SATELLITES), (*CLOUD COVER, ALBEDO
(ASTRONOMY)), CLOUDS, PHOTOGRAPHIC ANALYSIS, SOLAR
RADIATION, TEMPERATURE, SKY, INFRARED WINDOWS, SCANNING,
SCATTERING, RADIOMETERS (U)
IDENTIFIERS: TIROS (U)

DATA OBTAINED FROM THE SOLAR-REFLECTANCE CHANNELS
OF TIROS III ARE EXAMINED FOR A REGION WHICH WAS
SCANNED TWICE WITHIN A FEW MINUTES AS A RESULT OF A
CHANGE IN THE SCANNING MODE OF THE RADIOMETER. THE
DATA ANALYSES INDICATE THAT SIGNALS RECEIVED FOR
SCATTERING ANGLES OF 60 TO 70 DEGREES ARE
SIGNIFICANTLY STRONGER THAN THOSE FOR THE ANGLES OF
130 TO 160 DEGREES. THE DIFFERENCE BETWEEN ALBEDOS
FOR THESE TWO RANGES OF SCATTERING ANGLE WAS LARGEST
FOR AN AREA OF RELATIVELY CLEAR SKIES. THE
VARIATION OF ALBEDO WITH THE SCATTERING ANGLE WAS
MORE PRONOUNCED FOR THE BROAD SOLAR CHANNEL THAN FOR
THE VISIBLE CHANNEL. POTENTIAL LIMB EFFECTS FOR
PARTLY CLOUDY SKY ARE ESTIMATED IN TERMS OF
CLOUDINESS, EFFECTIVE TEMPERATURE, AND ALBEDO.
ATMOSPHERIC EFFECTS ARE NEGLECTED. IT IS SHOWN
THAT EFFECTIVE TEMPERATURES FROM AN IDEAL INFRARED
WINDOW COULD DECREASE BY MORE THAN 5 DEGREES
KELVIN, WHILE THE ALBEDOS FROM A SOLAR-REFLECTANCE
CHANNEL INCREASE BY MORE THAN 10 PERCENT FOR A
TYPICAL INCREASE (40 DEGREES) IN THE RADIOMETRIC
NAZIR ANGLE OF A SCAN PATTERN. (AUTHOR) (U)

UNCLASSIFIED

ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-448 466

AEROMETRIC RESEARCH INC GOLETA CALIF
SILENT AREA ANALYSIS USING TIROS DATA.

(U)

DESCRIPTIVE NOTE: FINAL REPT..

SEP 64 128P THOMPSON, JOHN R. ;CRONIN,

JOHN C. ;KERR, RAYMOND E. , JR.;

CONTRACT: N189 18a 57542A

MONITOR: NWRP 33 0964 094

UNCLASSIFIED REPORT

22

SUPPLEMENTARY NOTE:

DESCRIPTORS: (WEATHER FORECASTING, METEOROLOGICAL
SATELLITES), CLOUDS, PATTERN RECOGNITION, TROPOSPHERE,
PHOTOGRAPHIC ANALYSIS, ATMOSPHERIC MOTION, DETECTION,
METEOROLOGICAL CHARTS, DATA, GEOGRAPHY, INFRARED
RADIATION, SATELLITES (ARTIFICIAL)

(U)

IDENTIFIERS: TIROS

(U)

THE MAJOR CONCLUSION REACHED IN THIS STUDY IS THAT
THE TIROS PHOTOGRAPHS DO REVEAL SUFFICIENT DETAIL
AND PATTERN DIFFERENCES SIGNIFICANT ENOUGH TO BE
USEFUL AS AN ANALYSIS TOOL IN SILENT AREAS, AND WHEN
SUFFICIENT DAILY TIROS COVERAGE IS AVAILABLE,
THESE FEATURES MAY BE TRACKED FOR GREAT DISTANCES
WITH CONSIDERABLE ACCURACY. FRONTAL BANDS
(PARTICULARLY THE POLAR FRONT BUT INCLUDING
MULTIPLE FRONTS), LOW PRESSURE AREAS, AND MIGRATORY
HIGHS ARE READILY IDENTIFIABLE FROM THE PHOTOGRAPHS.
IN ADDITION, THE SURFACE AND 500 MB FLOW LINES ARE
FREQUENTLY, BUT NOT ALWAYS, DISCERNABLE FROM THE
ORGANIZATION AND DETAIL REVEALED IN THE PHOTOS.
(AUTHOR)

(U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-435 822

TEXAS A AND M UNIV COLLEGE STATION

INVESTIGATION OF A TIROS III PHOTOGRAPH OF THE
FLORIDA PENINSULA TAKEN ON 14 JULY 1961, (U)

JAN 64 21P RANDERSON, DARRYL ; THOMPSON,

AYLMER H. ;

REPT. NO. 6 , R64 4T

CONTRACT: AF19 604 8450

PROJ: 6698 AND 285

TASK: 66982

MONITOR: AFCRL 64 237

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (METEOROLOGICAL SATELLITES, PHOTOGRAPHIC
ANALYSIS), (THUNDERSTORMS, FLORIDA), CLOUDS, LAKES,
ATMOSPHERIC SOUNDINGS, TEMPERATURE (U)
IDENTIFIERS: TIROS, 1964 (U)

A 14 JULY 1961 TIROS PHOTOGRAPH OF THE
FLORIDA PENINSULA SUGGESTS THAT BY EARLY
AFTERNOON THUNDERSTORM ACTIVITY WAS CONCENTRATED
ALONG ALL COASTS. THERE WERE INDICATIONS THAT THIS
PECULIAR DISTRIBUTION WAS RELATED TO THE FORMATION OF
CONVERGENCE OR ACTIVITY LINES ALONG THE COASTS CAUSED
BY SURFACE HEATING OVER THE INTERIOR AND THE
DEVELOPMENT OF WEAK SEA BREEZE CIRCULATIONS ALONG ALL
COASTS. THIS PICTURE ALSO SHOWS THE STABILIZING
INFLUENCE OF THE LARGER LAKES OVER THE PENINSULA,
FOR EXAMPLE, LAKE OKEECHOBEE, (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-433 731

GENERAL DYNAMICS/ASTRONAUTICS SAN DIEGO CALIF
WEATHER SATELLITE DATA PROCESSING.

(U)

DESCRIPTIVE NOTE: FINAL REPT. AUG 61-JAN 64.

JAN 64 107P MARGGRAF, WALTER A. ;

REPT. NO. A DBB64 002

CONTRACT: AF19 604 8861

PROJ: 6698

TASK: 669802

MONITOR: AFCRL 64 62

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (WEATHER STATIONS, SATELLITES
(ARTIFICIAL)), (SATELLITES (ARTIFICIAL), WEATHER
STATIONS), (METEOROLOGICAL SATELLITES), DATA PROCESSING
SYSTEMS, MOSAICS (LIGHTSENSITIVE), VIDEO SIGNALS,
INFRARED RADIATION, CORRELATION TECHNIQUES, ANALYSIS (U)
IDENTIFIERS: 1964, TIROS (U)

THIS FINAL REPORT DESCRIBES THE RESULT OF THE
METEOROLOGICAL SATELLITE DATA PROCESSING
STUDY. THREE WORKING AREAS ARE DOCUMENTED: 1)
AUTOMATIC MOSAICING OF RECTIFIED TIROS VIDEO DATA,
2) INFRARED VISUAL CORRELATION OF TIROS
RADIOMETER DATA, AND 3) ANALYSIS OF CLOUD
DISTRIBUTION FROM TIROS RECTIFIED MOSAICS.
EXAMPLES OF RECTIFIED MOSAICS AT DIFFERENT
RESOLUTIONS FOR SEVEN SELECTED TIROS ORBITS ARE
INCLUDED. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-433 465

METEOROLOGICAL SATELLITE LAB WEATHER BUREAU WASHINGTON D
C

TIROS CLOUD PATTERN MORPHOLOGY OF SOME MID-LATITUDE
WEATHER SYSTEMS, (U)

JAN 64 29P BRODRICK, HAROLD J. JR.:

MONITOR: MSL 24

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*METEOROLOGICAL SATELLITES, METEOROLOGICAL
PHENOMENA), VORTICES, CLOUDS, ATMOSPHERE, AIR MASS
ANALYSIS, CLOUD COVER (U)

IDENTIFIERS: TIROS, 1964, VORTICITY ADVECTION, CLOUD
PATTERNS, BANDS (CLOUDS), FRONTAL BANDS, CLOUD PATTERN
MORPHOLOGY (U)

IN THE SEARCH FOR WAYS OF USING SATELLITE-OBSERVED
CLOUD PATTERNS TO SUPPLEMENT A STUDY OF THE
CONNECTION BETWEEN CLOUDINESS AND VORTICITY ADVECTION
WAS UNDERTAKEN. ALTHOUGH THIS INVESTIGATION
CONFIRMED THE EXPECTED ASSOCIATION OF CLOUDINESS WITH
POSITIVE VORTICITY ADVECTION AT 500 MB. AND LACK OF
CLOUDINESS WITH NEGATIVE ADVECTION, THE STUDY WAS
ENLARGED TO CONSIDER THE STRUCTURE OF THE SYNOPTIC
SYSTEM ACCOMPANYING A GIVEN CLOUD PATTERN. CASES
WERE CHOSEN FROM TIROS IV ON THE BASIS OF THE
PRESENCE OF A RECOGNIZABLE CYCLONIC OR FRONTAL CLOUD
MASS, AND THE CLOUD PATTERNS WERE COMPARED WITH A
NUMBER OF PARAMETERS CHARACTERIZING THE CIRCULATION
AND THERMAL STRUCTURE OF THE ATMOSPHERE.
DIFFERENCES IN CLOUD PATTERN STRUCTURE APPEARED TO
BE ASSOCIATED WITH THESE FACTORS: (1) THE TILT
OF THE CIRCULATION SYSTEM; (2) THE AMPLITUDE OF
THE THERMAL PATTERN; AND (3) THE ORIENTATION AND
GRADIENTS OF THE THICKNESS PATTERN. RESULTS
INDICATE THAT INFORMATION ABOUT THE THREE-DIMENSIONAL
STRUCTURE OF THE ATMOSPHERE CAN BE INFERRED FROM THE
SATELLITE-VIEWED CLOUD STRUCTURES. (AUTHOR) (U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-431 110

MICHIGAN UNIV ANN ARBOR COLL OF ENGINEERING
QUANTITATIVE INTERPRETATION OF LOW-LEVEL CUMULIFORM
CLOUD PATTERNS AS SEEN ON METEOROLOGICAL SATELLITE
VIDEOGRAPHS (PRELIMINARY RESULTS). (U)

DESCRIPTIVE NOTE: FINAL REPT.,

FEB 64 43P LEESE, JOHN A.; EPSTEIN, E.

S. I

REPT. NO. 05631 1 F

CONTRACT: CMB10564

PROJ: 05631

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (CLOUDS, DISTRIBUTION), (SATELLITES
(ARTIFICIAL), METEOROLOGY), CLOUD COVER, METEOROLOGICAL
PARAMETERS, CUMULUS CLOUDS, ANTICYCLONES, STATISTICAL
PROCESSES, ANALYSIS, SAMPLING, METEOROLOGICAL
PHENOMENA, EXPERIMENTAL DATA, TABLES (U)
IDENTIFIERS: 1964, SYNOPTIC CLIMATOLOGY (U)

INTERPRETATION OF THE CLOUD PATTERNS AS SEEN FROM
THE ALTITUDE OF METEOROLOGICAL SATELLITES IN TERMS OF
QUANTITATIVE METEOROLOGICAL PARAMETERS IS A COMPLEX
PROBLEM. THIS STUDY IS CONFINED TO THE LOW-LEVEL
CUMULIFORM CLOUD TYPES ASSOCIATED WITH THE RELATIVELY
SIMPLE SYNOPTIC CONDITIONS OF THE SEMI-PERMANENT
OCEANIC ANTICYCLONE. STATISTICAL METHODS IN THE
FORM OF DISCRIMINANT ANALYSIS TECHNIQUES ARE USED TO
DETERMINE THE SYNOPTIC PARAMETERS WHICH MAKE A
SIGNIFICANT CONTRIBUTION IN DETERMINING THE PATTERNS
OF THESE LOW-LEVEL CUMULIFORM CLOUDS. PRELIMINARY
RESULTS HAVE DEMONSTRATED THE VALIDITY OF THIS
TECHNIQUE IN DETERMINING THE PARAMETERS WHEN THE
SAMPLE SIZE IS LARGE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-428 165

CHICAGO UNIV ILL

USE OF TIROS PICTURES FOR STUDIES OF THE INTERNAL
STRUCTURE OF TROPICAL STORMS. (U)

OCT 63 21P FUJITA, TETSUYA ; USHIJIMA,
TOSHIMITSU ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*METEOROLOGICAL SATELLITES, TROPICAL
CYCLONES), (*TROPICAL CYCLONES, METEOROLOGICAL
SATELLITES), CUMULUS CLOUDS, STORMS, PHOTOGRAPHS, AERIAL
PHOTOGRAPHS, METEOROLOGICAL PHENOMENA, WIND (U)

IDENTIFIERS: 1963, TIROS, MESOMETEOROLOGY PROJECT,
TROPICAL STORMS, SUNGLINT, STORM IDENTIFICATION,
CONVECTIVE TOWERS, SHADOW POINTS (U)

A SERIES OF TIROS I PICTURES OF THE SOUTH
PACIFIC TROPICAL STORM OF 10 APRIL 1960,
RECTIFIED WITH GREAT ACCURACY, WAS USED TO STUDY THE
FINE STRUCTURE OF THE STORM. THREE ORIENTATIONS OF
CLOUDS IN-LINE WERE EXAMINED IN AN ATTEMPT TO FIND
THEIR CAUSES. THE FIRST ORIENTATION REPRESENTS THE
DIRECTION OF THE LOW LEVEL WINDS ALONG WHICH SMALL
CUMULI ALIGN AS A CLOUD STREET. THE SECOND
CORRESPONDS TO THE SO-CALLED HURRICANE RAINBAND AND
PROBABLY REPRESENTS A STREAK LINE WHEN LARGE
CONVECTIVE TOWERS ORIGINATE AT A FIXED SOURCE ON THE
EARTH. THE PLUMES OF CIRRUS FROM HIGH CONVECTIVE
TOWERS APPEAR AS THE THIRD ORIENTATION. A
THEORETICAL STUDY LEADING TO THE DETERMINATION OF
CLOUD HEIGHT FROM SHADOW ON THE OCEAN SURFACE WAS
ALSO MADE. IT WAS FOUND THAT IT IS FEASIBLE TO
IDENTIFY SHADOWS IF CLOUDS ARE LOCATED OVER AN AREA
OF OCEAN SUNGLINT. (AUTHOR) (U)

UNCLASSIFIED

CDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-426 875

ARACON GEOPHYSICS CO CONCORD MASS
FLEET APPLICATIONS METEOROLOGICAL OPERATIONAL
SATELLITES (TROPICS-EASTERLY WAVES).
DESCRIPTIVE NOTE: FINAL REPT.,

(U)

DEC 63 45P HERRITT, EARL S. I

REPT. NO. ARA F9252 2

CONTRACT: N189 18A 56897A

UNCLASSIFIED REPORT

DESCRIPTORS: (METEOROLOGICAL SATELLITES, WEATHER
STATIONS), (WEATHER FORECASTING, METEOROLOGICAL
SATELLITES), (CLOUDS, PATTERN RECOGNITION),
(ATMOSPHERIC MOTION), ATMOSPHERE MODELS,
TROPOSPHERE, CLOUD COVER, AIR MASS ANALYSIS,
VORTICES, TROPICAL CYCLONES, UPPER ATMOSPHERE,
MEASUREMENT, CLIMATOLOGY, PHOTO GRAMMETRY,
PHOTOGRAPHIC RECONNAISSANCE.

(U)

IDENTIFIERS: 1963, EASTERLY PERTURBATIONS, TIROS,
SPACE PHOTOGRAPHY.

(U)

ANALYSES OF TROPICAL PERTURBATIONS IN THE
ATLANTIC REGION (COMMONLY REFERRED TO AS
EASTERLY WAVES). UTILIZING OBSERVATIONS FROM
METEOROLOGICAL SATELLITES, REVEAL THAT FIVE
DISTINCTLY DIFFERENT CLOUD DISTRIBUTIONS OCCUR.
THESE PATTERNS ARE BOTH LINEAR (SIMILAR TO THE
CLASSIC RIEHL MODEL OF THE EASTERLY WAVE) AND
VORTICAL. THE VORTICAL PATTERNS APPEAR MOST
FREQUENTLY AND ARE OFTEN RELATED TO A CLOSED
CYCLONIC CIRCULATION IN THE MID-TROPOSPHERE.
CALCULATIONS OF THE HORIZONTAL AND VERTICAL
DISTRIBUTION OF DIVERGENCE AND VORTICITY WHICH ARE
INDICATIVE OF A MID-TROPOSPHERE CIRCULATION IN AN
INTENSE DISTURBANCE ARE SHOWN. (AUTHOR)

(U)

UNCLASSIFIED

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-423 109

RADIO CORP OF AMERICA PRINCETON N J DEFENSE ELECTRONIC
PRODUCTS

RESEARCH TO COMPILE UNPUBLISHED SPACE MATERIALS
INFORMATION PERTAINING TO RCA SPACE CAPSULE
PROGRAM.

(U)

OCT 63 99P

CONTRACT: AF33 657 6881

PROJ: 7381

TASK: 738103

MONITOR: ASD TDR63 255

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON DATA COLLECTION AND
CORRELATION.

DESCRIPTORS: (*MATERIALS, METEOROLOGICAL SATELLITES),
(*METEOROLOGICAL SATELLITES, MATERIALS), (*DATA,
MATERIALS), ALUMINUM, ALUMINUM ALLOYS, SATELLITES
(ARTIFICIAL), COATINGS, DIELECTRIC PROPERTIES, PLASTIC
PAINTS, SURFACES, SALT SPRAY TEST, WEAR RESISTANCE,
ELECTRICAL PROPERTIES, SURFACE PROPERTIES, PHYSICAL
PROPERTIES, MECHANICAL PROPERTIES, BONDING,
ENCAPSULATIONS, ADHESIVES, SEALING COMPOUND, POLYMERS,
WIRE, SILICON COMPOUNDS, RUBBER, EXPANDED PLASTICS,
ISOCYANATE PLASTICS

(U)

RESEARCH WAS CONDUCTED TO COMPILE THE UNPUBLISHED
SPACE MATERIALS INFORMATION PERTAINING TO THE RCA
SPACE CAPSULE PROGRAM. THIS REPORT INCLUDES
A COMPILATION OF MONOGRAPHS ON 'METALS AND
COATINGS' AND 'BONDINGS AND ENCAPSULATIONS',
AND A 'MATERIALS SUMMARY'. THE MATERIALS
INFORMATION PRESENTED REFERS TO THE RESINS, SILICONE
RUBBER COMPOUNDS, SURFACE COATINGS, AND METALS THAT
WERE USED ON TIROS I, II, III, AND IV. EACH OF
THE MATERIALS IS DESCRIBED IN DETAIL INCLUDING SUCH
INFORMATION AS PHYSICAL PROPERTIES, ELECTRICAL
PROPERTIES, FORMULATIONS, PROCEDURES FOR MIXING,
USES, PREPARATION OF SURFACES, APPLICATION OF
MIXTURES, CURE CYCLES, AND THE METHODS OF TESTING
USED TO DETERMINE ALL VALUES. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-422 285

APACON GEOPHYSICS CO CONCORD MASS

ANALYSES IN THE FIELD OF SATELLITE METEOROLOGY. PART

I. SUMMARY.

(U)

DESCRIPTIVE NOTE: FINAL RPT.:

100

WIDGER, WILLIAM K., JR.;

CONTRACT: AF19 62A 320

PROJ: 698

TASK: 6698C2

MONITOR: AFRL

63 843

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE.

DESCRIPTORS: (METEOROLOGICAL SATELLITE, ANALYSIS),
TERRAIN, CLOUDS, STORMS, TROPICAL CYCLONES, PHOTOGRAPHIC
RECONNAISSANCE, RECTIFIERS (PHOTOGRAPHY) (U)
IDENTIFIERS: 1963, TIROS, NIMBUS (U)

CONTENTS: ANALYSES OF TERRESTRIAL FEATURES
AND INITIATION OF THE CONSTRUCTION OF A
LANDMARK MAP; DEVELOPMENT OF MODIFIED
FUJITA TECHNIQUE FOR TIROS PICTURE LOCATION;
INVESTIGATION OF THE CHARACTERISTICS OF THE
NIMBUS AUTOMATIC PICTURE TRANSMISSION (APT)
SYSTEM AND PRELIMINARY DEVELOPMENT OF DATA
LOCATION TECHNIQUES; COMPILATION OF
OPERATIONALLY APPLICABLE TECHNIQUES FOR THE
UTILIZATION OF METEOROLOGICAL SATELLITE DATA;
INITIAL STUDIES TOWARDS A TROPICAL STORM
DEVELOPMENT MODEL; ANALYSES OF STRATIFORM
CLOUD PATTERNS NEAR THE CANARY ISLANDS. (U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-420 907

ALLIED RESEARCH ASSOCIATES INC CONCORD MASS
NIMBUS ATTITUDE DETERMINATION SUBSYSTEM. (U)
DESCRIPTIVE NOTE: FINAL REPT.
JUN 63 1V BARTLETT, R.; DEAN, C.;
CREAVES, J. I
REPT. NO. CONTRACT

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (METEOROLOGICAL SATELLITES, ATTITUDE
INDICATORS), (ATTITUDE INDICATORS, METEOROLOGICAL
SATELLITES), PHOTOGRAMMETRY, PHOTOGRAPHIC ANALYSIS,
CLOUD COVER, DIGITAL COMPUTERS, FILM READER, PROGRAMMING
(COMPUTERS), DISPLAY SYSTEMS, COSTS, CAMERAS (U)
IDENTIFIERS: 1963, NIMBUS SATELLITE (U)

THE OPERATIONAL PROCEDURES AND EQUIPMENT
REQUIREMENTS OF A SUBSYSTEM FOR DETERMINATION OF
NIMBUS SATELLITE ATTITUDE BY PHOTOGRAMMETRIC
TECHNIQUES IS REPORTED. COORDINATE MEASUREMENTS OF
LANDMARKS AND COMMON POINTS IN ADJACENT TRIPLETS
APPEARING IN KINESCOPE GENERATED CLOUD COVER
PHOTOGRAPHS ARE MEASURED ON A FILM READER WHOSE
OUTPUT FEEDS A DIGITAL COMPUTER FOR IMMEDIATE
COMPUTATION OF ATTITUDE. THIS COMPUTER IS
PROGRAMMED TO TEST THE FILM READER DATA AND
COMMUNICATE WITH THE FILM READER OPERATOR IF
OMISSIONS OR MISTAKES ARE APPARENT. THE SUBSYSTEM
IS DESIGNED FOR RAPID GATHERING OF INFORMATION AND
COMPUTATION OF ATTITUDE SINCE THE ATTITUDE DETERMINED
BY USE OF THE SUBSYSTEM IS REQUIRED FOR ACCURATE
REFERENCING OF NIMBUS SATELLITE DATA. A SECOND
FUNCTION OF THE SUBSYSTEM IS THE DETERMINATION OF
ELECTRONIC DISTORTION OCCURRING IN THE CLOUD COVER
PHOTOS BY MEASUREMENT OF THE FIDUCIAL MARKS WHICH
HAVE BEEN PLACED ON THE CAMERA SYSTEM VIDICONS.
THE TECHNIQUE OF ATTITUDE DETERMINATION THROUGH
MEASUREMENTS OF COMMON POINTS (MATCHPOINTS) IN
THE OVERLAPPING AREAS OF SUCCESSIVE TRIPLETS WILL
ALSO FACILITATE AUTOMATIC "MOSAICKING" OF SATELLITE
CLOUD COVER PHOTOGRAPHS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-420 243

STANFORD RESEARCH INST MENLO PARK CALIF
PRELIMINARY EXAMINATION OF DAYTIME RADIATION DATA
FROM TIROS III OVER CLOUDY REGIONS.

(U)

AUG 63 26P VIEZEE, WILLIAM ; DAVIS, PAUL

A. :

REPT. NO. 1

CONTRACT: AF19 62A 2777

PROJ: 6698 ,SR14446

TASK: 669803

MONITOR: AFRL 43 800

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (SOLAR RADIATION, METEOROLOGICAL
SATELLITES), (METEOROLOGICAL SATELLITES, SOLAR
RADIATION), CLOUD COVER, AERIAL PHOTOGRAPHY,
PHOTOINTERPRETATION, TEMPERATURE, ALBEDO (ASTRONOMY),
DENSITY, CLOUDS, SCATTERING, ABSORPTION
IDENTIFIERS: 1963, TIROS

(U)

(U)

SAMPLES OF LISTED RADIATION DATA FOR THREE
CHANNELS (2, 3, AND 5) FROM TIROS III ARE
EXAMINED IN CONJUNCTION WITH CLOUD PHOTOGRAPHS.
ALTHOUGH THE EFFECTIVE TEMPERATURES FOR THE WINDOW
CHANNEL (CHANNEL 2) AND THE COMPUTED ALBEDOS FOR
THE VISIBLE CHANNEL (CHANNEL 5) DEPICT THE CLEAR
AND CLOUDY REGIONS, APPARENT VARIATIONS IN CLOUD
DENSITY ARE NOT DESCRIBED ADEQUATELY BY EITHER
CHANNEL ALONE. MOST OF THE VARIABILITY OF
CHANNEL 5 DATA FOR SELECTED REGIONS WITH CONSTANT
CHANNEL 2 DATA APPEAR TO RESULT FROM
INHOMOGENEITIES IN THE VIEWED CLOUD COVER.
COMPUTED ALBEDOS FOR CHANNEL 5 DID NOT DISPLAY A
DEPENDENCE ON SCATTERING ANGLE FOR SCATTERING ANGLES
BETWEEN 135 AND 156 DEGREES. A PROPER
INTERPRETATION OF CHANNEL 3 DATA AWAITS FURTHER
STUDY ON THE RELATIVE SIGNIFICANCE OF SCATTERING AND
ABSORPTION OF SOLAR RADIATION WITHIN THE SPECTRAL
REGION COVERED BY CHANNEL 3. INSTRUMENTAL
UNCERTAINTIES REMAIN IN THE DATA, ESPECIALLY FOR
CHANNEL 3 AND TO A LESSEER EXTENT FOR CHANNEL 5.
CONSEQUENTLY, ANALYSES OF DATA FROM THESE CHANNELS
EMPHASIZE RELATIVE VARIATIONS RATHER THAN ABSOLUTE
VALUES. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-420 174

ARACON GEOPHYSICS CO CONCORD MASS

SYNOPTIC INTERPRETATIONS OF CLOUD VORTEX PATTERNS AS
OBSERVED BY METEOROLOGICAL SATELLITES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,

NOV 63 214P BOUCHER, ROLAND J. ; BOWLEY,
CLINTON J. ; ROGERS, C. W. C. ; SHERR, PAUL E. ;

REPT. NO. F8243 2

CONTRACT: CWB10630

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*CLOUDS, VORTICES), (*METEOROLOGICAL
SATELLITES, METEOROLOGICAL PHENOMENA), ANALYSIS, WIND,
TROPOSPHERE, TROPICAL CYCLONES, MOTION (U)
IDENTIFIERS: 1963, TIROS (U)

CORRELATIONS BETWEEN CLOUD FEATURES IN VORTEX
PATTERNS AND CONVENTIONAL SYNOPTIC PARAMETERS WERE
EXAMINED. THESE STUDIES WERE LIMITED BOTH BY THE
LACK OF SUFFICIENT QUANTITIES OF TIROS DATA
CONSIDERED REPRESENTATIVE OF THE EARLIER STAGES OF
VORTEX DEVELOPMENT, AND BY THE INADEQUACIES OF
CONVENTIONAL WEATHER ANALYSES OVER MANY OCEAN AREAS.
FOR VORTICES NORMALLY REPRESENTATIVE OF THE MORE
ADVANCED STAGES OF DEVELOPMENT, THE ONE STANDARD
DEVIATION CIRCLE, FOR THE DISTANCE BETWEEN THE
POSITION OF THE CLOUD VORTEX CENTER AND THAT OF THE
RELATED SURFACE PRESSURE CENTER, HAD A RADIUS OF 148
NAUTICAL MILES. AT 500 MB, THE CORRESPONDING VALUE
WAS 109 NAUTICAL MILES. IN BOTH CASES, IT APPEARS
A CONSIDERABLE PART OF THIS POSITION DIFFERENCE MAY
OFTEN BE ASCRIBABLE TO UNCERTAINTY AS TO THE TRUE
POSITION OF THE PRESSURE CENTER. IN GENERAL,
INTERMEDIATE STAGE VORTICES WERE BETTER RELATED TO
SURFACE PRESSURE CENTER POSITIONS; IN ADVANCED
STAGES, THE RELAT TO THE 500 MB CENTER IS
IMPROVED. (AUT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-418 542

NEW YORK UNIV N Y SCHOOL OF ENGINEERING AND SCIENCE
SATELLITE OBSERVATIONS OF INFRARED RADIATION. (U)
DEC 59 6P LONDON, JULIUS ;
REPT. NO. SCIENTIFIC REPT. NO. 1
CONTRACT: AF19 604 5935

UNCLASSIFIED REPORT

DESCRIPTORS: (•INFRARED RADIATION, ATMOSPHERE),
(•METEOROLOGICAL SATELLITES, INFRARED
RADIATION), MEASUREMENT, ATMOSPHERE TEMPERATURE,
SKY BRIGHTNESS, HEATING, WATER VAPOR. (U)
IDENTIFIERS: 1959. (U)

SATELLITE OBSERVATIONS OF INFRARED ULTRAVIOLET.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-418 187

ALLIED RESEARCH ASSOCIATES INC BOSTON MASS
AN ANALYSIS OF STRATIFORM CLOUD PATTERNS IN THE
CANARY ISLANDS REGION, (U)

MAY 63 18P HERRITT, EARL S.;

CONTRACT: AF19 628 320

PROJ: 7659

TASK: 765901

MONITOR: AFRL 63 694

UNCLASSIFIED REPORT

DESCRIPTORS: (*METEOROLOGICAL SATELLITES,
CLOUDS), (*STRATUS CLOUDS, METEOROLOGICAL
SATELLITES), PHOTOGRAPHIC ANALYSIS, ATLANTIC
OCEAN ISLANDS, AIR MASS ANALYSIS, (U)

IDENTIFIERS: 1963, TIROS, CANARY ISLANDS,
DOUGHNUT CLOUD, (U)

TIROS-OBSERVED STRATIFORM CLOUD PATTERNS OF THE
CANARY ISLANDS REGION ARE ANALYZED DURING TWO
DIFFERENT SYNOPTIC SITUATION. THE RESULTS OF THESE
ANALYSES SUGGEST THAT THE VARIATIONS IN CLOUD
DISTRIBUTION IN THESE CASES ARE RELATED TO VARIATIONS
IN THE DIRECTION OF THE LOW LEVEL WIND.
APPLICATION OF THIS HYPOTHESIS PROVIDES A POSSIBLE
EXPLANATION FOR THE 'DOUGHNUT' CLOUD WHICH APPEARED
IN TIROS I PHOTOGRAPHS OF THIS AREA.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-416 408

AEROMETRIC RESEARCH INC GOLETA CALIF
THE USE OF METEOROLOGICAL SATELLITE CLOUD
PHOTOGRAPHS IN SILENT AREA FORECASTING.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

AUG 63 127p

KERR, RAYMOND E.; CRONIN,

JOHN G.; THOMPSON, JOHN R.; ELLIOTT, ROBERT D.;

CONTRACT: N189 18R 55464A

UNCLASSIFIED REPORT

DESCRIPTORS: (•METEOROLOGY, SATELLITES),
(•PHOTOGRAPHS, CLOUDS), WEATHER FORECASTING,
ANALYSIS, AERIAL PHOTOGRAPHS, CLOUD COVER.

(U)

IDENTIFIERS: SILENT AREA, 1963, TIROS.

(U)

METEOROLOGICAL SATELLITE CLOUD PHOTOGRAPHS IN SILENT AREA
FORECASTING.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-415 962

ALLIED RESEARCH ASSOCIATES INC CONCORD MASS
FLEET APPLICATIONS -- METEOROLOGICAL OPERATIONAL
SATELLITES (ANTARCTIC AREA). (U)

DESCRIPTIVE NOTE: FINAL REPT.,

AUG 63 66P HERRITT, EARL S. ;
MONITOR: NWHF 33 0863 077

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: ORIGINAL CONTAINS COLOR PLATES; ALL
DDC REPRODUCTIONS WILL BE IN BLACK AND WHITE, ORIGINAL
MAY BE SEEN IN DDC HQ.

DESCRIPTORS: (1) METEOROLOGICAL SATELLITES, METEOROLOGICAL
PARAMETERS), SATELLITES (ARTIFICIAL), METEOROLOGICAL
CHARTS, CLIMATOLOGY, CYCLONES, TROPOSPHERE, CLOUDS, ICE,
SNOW, WIND, JET STREAMS (METEOROLOGY), EXPERIMENTAL
DATA, WEATHER FORECASTING, FLEETS (U)
IDENTIFIERS: 1963, ANTARCTIC, TIROS (U)

STUDIES OF METEOROLOGICAL SATELLITE OBSERVATIONS IN
THE SOUTHERN HEMISPHERE, FOR THE PERIOD JULY 1 -
OCT 31, 1962, HAVE LED TO THE DEVELOPMENT OF
TECHNIQUES FOR EXTRACTING OPERATIONALLY USEFUL
METEOROLOGICAL INFORMATION FROM SATELLITE OBSERVED
CLOUD PATTERNS. THESE TECHNIQUES ARE DESIGNED TO
PROVIDE USEFUL DATA ON THE FOLLOWING: (A) FIELD
OF MOTION OF THE LOWER AND UPPER TROPOSPHERE,
(B) CYCLONIC VORTEX INTENSITY, DEVELOPMENT AND
DIRECTION OF FUTURE MOTION, (C)
DIFFERENTIATION OF CLOUD FROM SNOW AND SNOWCOVERED
ICE, THE TECHNIQUES REPORTED HERE WERE
SPECIFICALLY DEVELOPED TO PROVIDE METEOROLOGICAL
INFORMATION FOR SUPPORT OF THE ANTARCTIC RESUPPLY
OPERATIONS. HOWEVER, FURTHER TESTS AND EVALUATION
MAY INDICATE THAT MANY OF THESE TECHNIQUES ARE
APPLICABLE TO OTHER GEOGRAPHICAL AREAS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-413 944

STANFORD RESEARCH INST MENLO PARK CALIF
INVESTIGATION OF THE OPERATIONAL SE OF CLOUD
PHOTOGRAPHS FROM WEATHER SATELLITES IN THE NORTH
PACIFIC.

(U)

DESCRIPTIVE NOTE: FINAL RPT.,

NOV 62 93a

SEREBRENY, SIDNEY M.; WIEGMAN,

ELDON J.; HADFIELD, REX G.;

CONTRACT: C#B1023a

PROJ: 3858

UNCLASSIFIED REPORT

DESCRIPTORS: (*SATELLITES (ARTIFICIAL),
WEATHER STATIONS); (*CLOUDS, PHOTOGRAPHS),
(*AERIAL PHOTOGRAPHY, EFFECTIVENESS),
(*METEOROLOGICAL SATELLITES, WEATHER FORECAST
ING), AIR MASS ANALYSIS, ATMOSPHERIC MOTION,
CLOUD COVER, PHOTOGRAPHIC ANALYSIS, JET
STREAMS (METEOROLOGY), ATMOSPHERIC TEMPERATURE,
MAPS, METEOROLOGICAL CHARTS.
IDENTIFIERS: 1962.

(U)

(U)

THE OPERATIONAL USE OF SATELLITE CLOUD PHOTO GRAPHS
IS INVESTIGATED THROUGH A SERIES OF TIROS I
PHOTOGRAPHS TAKEN ON 21 ORBITS IN THE NORTH
PACIFIC. DURING THIS PERIOD, A SEQUENCE OF
VORTICES AND FRONTS WAS OBSERVED IN THE NORTHERN
PACIFIC. LATE IN THE PERIOD, BLOCKING ACTION
DEVELOPED IN THE EAST CENTRAL PACIFIC. THE
MANNER IN WHICH THESE CIRCULATION PHENOMENA ARE
REFLECTED IN THE SATELLITE PHOTOGRAPHS IS DISCUSSED.
POSITIONING OF JET STREAMS OVER THE NORTHERN
PACIFIC IN RELATION TO THE CLOUD SYSTEMS IS
DISCUSSED AND ILLUSTRATED FOR EACH OF THE DAYS IN THE
CASE HISTORY. ATMOSPHERIC MOTIONS IMPLIED BY THE
CLOUD COVER IN SATELLITE PHOTOGRAPHS ARE STUDIED BY
MEANS OF TIME SECTIONS AT A SINGLE STATION.
RESULTS OF THE STUDY INDICATE THAT SATELLITE CLOUD
PHOTOGRAPHS ARE OPERATIONALLY USEFUL.
CHARACTERISTIC CLOUD PATTERNS ACCOMPANY FRONTAL
AIR-MASS CHANGES. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-413 374

WEISER ASSOCIATES INC WASHINGTON D C
DIGITAL DATA ARCHIVAL SYSTEM FOR NIMBUS
SATELLITE.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

MAY 63 113P

WEISER, S.; STEIN, E. I

CONTRACT: CWB10475

TASK: 2

UNCLASSIFIED REPORT

DESCRIPTORS: (*METEOROLOGICAL SATELLITES,
PHOTOGRAPHIC RECONNAISSANCE), (*PHOTOGRAPHIC
RECONNAISSANCE, DATA STORAGE SYSTEMS), DIGITAL
SYSTEMS, DIGITAL RECORDING SYSTEMS, TELEMETERING
DATA, CLOUDS, PHOTOGRAPHIC FILMS, PHOTOGRAPHIC
RECORDING SYSTEMS, PHOTOGRAPHIC PRINTERS, DE SIGN,
SPECIFICATIONS.

(U)

IDENTIFIERS: NIMBUS SATELLITE, 1963.

(U)

IN THE NEAR FUTURE A NIMBUS SATELLITE WILL BE
SENT INTO ORBIT TO COLLECT DATA ON GLOBAL WEATHER
CONDITIONS. THIS SATELLITE REPRESENTS A SIGNIF
ICANT ADVANCE OVER THE EARLIER TIROS SERIES, SINCE
IT WILL TRAVEL IN A POLAR ORBIT AND BE EARTH ORIENTED
TO GIVE CONTINUOUS DATA COVERAGE, THIS WILL BE IN
THE PHOTOGRAPHIC IMAGES OF CLOUD COVER WITH
SUPPLEMENTAL INFRARED INFORMATION TO PROVIDE A
COMPREHENSIVE RECORD OF UPPER ATMOSPHERIC CONDITIONS.
THIS REPORT IS PRIMARILY CONCERNED WITH THE
INFORMATION COLLECTED BY THE CAMERA SENSORS AND
TRANSMITTED BACK TO EARTH BY TELEMETERING LINKS.
IT IS ESPECIALLY CONCERNED WITH THE STUDY AND
DEVELOPMENT OF AN ARCHIVAL SYSTEM FOR STORING THIS
INFORMATION IN THE DIGITAL FORM RESULTING FROM THE
EXTENSIVE COMPUTER PROCESSING PROGRAM. THIS STUDY
INCLUDES AN ANALYSIS OF PROBLEMS ENCOUNTERED IN
STORING DIGITAL INFORMATION FOR LONG PERIODS OF
TIME, THE ACCESS REQUIREMENTS OF THE POTENTIAL
SCIENTIFIC USER AND THE 'STATE OF THE ART' OF
STORAGE AND RETRIEVAL SYSTEMS AT THIS TIME.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-412 403

HAWAII INST OF GEOPHYSICS HONOLULU
TROPICAL CYCLONES OF THE EASTERN NORTH PACIFIC AS
REVEALED BY TIROS OBSERVATIONS. (U)

MAY 63 39P SADLER, JAMES C.:

REPT. NO. SCIENTIFIC REPT. NO. 4:

CONTRACT: AF19 604 6154

PROJ: 6698

TASK: 669802

MONITOR: AFCL 63 493

UNCLASSIFIED REPORT

DESCRIPTORS: (TROPICAL CYCLONES, OCEANS),
(METEOROLOGICAL SATELLITES, PHOTOGRAPHIC
ANALYSIS), SURFACE TEMPERATURES, INTENSITY,
METEOROLOGY, SHEAR STRESSES, TROPOSPHERE,
DATA, STORMS, HURRICANE TRACKING, TROPICAL
REGIONS, PHOTOGRAPHS, MAPPING. (U)

IDENTIFIERS: 1963, PACIFIC OCEAN, TIROS. (U)

PHOTOGRAPHIC DATA FROM TIROS SATELLITES INDICATE
THE FREQUENCY OF TROPICAL CYCLONES OF TROPICAL STORM
AND HURRICANE INTENSITY, TO BE SOME THREE TIMES
GREATER THAN THE FREQUENCY DETERMINED BY CONVENTIONAL
METEOROLOGICAL DATA IN THE EASTERN NORTH PACIFIC.
THE SEA SURFACE TEMPERATURES EXERT AN INFLUENCE ON
THE SIZE, INTENSITY AND TRACK OF THE CYCLONES BUT THE
DOMINANT INFLUENCE WHICH PREVENTS A LARGE NUMBER OF
CYCLONES FROM BEING EXPORTED INTO THE CENTRAL
PACIFIC WITH HURRICANE FORCE WINDS IS THE
"KILLING" EFFECT OF EXTREME VERTICAL SHEAR AS THE
CYCLONES PASS THROUGH THE UPPER TROPOSPHERIC RIDGE
LINE. TIROS DATA ARE PRESENTED TO ILLUSTRATE THE EF-
FECTS OF THESE INFLUENCES, SEPARATELY AND IN
COMBINATION, ON THE LIFE HISTORY OF EASTERN PACIFIC
TROPICAL CYCLONES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-409 109

ALLIED RESEARCH ASSOCIATES INC CONCORD MASS
APT USERS' GUIDE

(U)

JUN 63 43P GOLOSHLAK, LEON ;

REPT. NO. SR-1, ARA-T9219-1

CONTRACT: AF19 628 2471

PROJ: 6096

TASK: 609802

MONITOR: AFCRL 63 655

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: ORIGINAL CONTAINS COLOR PLATES; ALL
DDC REPRODUCTIONS WILL BE IN BLACK AND WHITE, ORIGINAL
MAY BE SEEN IN DDC HQ.

DESCRIPTORS: (*METEOROLOGICAL SATELLITES, AERIAL
PHOTOGRAPHY), (*TRACKING, METEOROLOGICAL
SATELLITES), (*HEIGHT FINDING, METEOROLOGICAL
SATELLITES), METEOROLOGICAL PARAMETERS, SAT
ELLITE ATTITUDE, PLOTTING BOARDS, SATELLITE
ANTENNAS, GEOGRAPHY, STABILIZATION, CLOUDS,
INSTRUCTION MANUALS.

(U)

IDENTIFIERS: GRIDS.

(U)

A GUIDE TO DATA HANDLING TECHNIQUES FOR THE NIM
BUS AUTOMATIC PICTURE TAKING (APT) SUB-SYSTEM
IS GIVEN. NO ATTEMPT IS MADE TO PRESENT A SOPHIS-
TICATED TREATMENT OF ALL FACETS OF RECTIFICATION OR
GEOGRAPHIC REFERENCING. IT IS ANTICIPATED THAT
OPERATING PERSONNEL WILL ATTEND A TRAINING COURSE ON
THIS SUBJECT IN WHICH THEORY AND DETAILED PRACTICE
WILL BE LAID OUT, ALTHOUGH THE APT SUB-SYSTEM
WAS ORIGINALLY INTENDED TO BE FLOWN ABOARD THE
NIMBUS SATELLITE. AN EXPERIMENTAL TIROS APT SUB-
SYSTEM MAY PRECEDE THE NIMBUS FLIGHT, AN
APPENDIX COVERS ADDITIONAL PROCEDURES REQUIRED TO
COPE WITH THE TIROS ATTITUDE PROBLEM. THIS
MANUAL SHOULD BE USED IN CONJUNCTION WITH MATERIALS
SPECIFICALLY DEVELOPED FOR THE APT SUB-SYSTEM.
ESPECIALLY THE APT TRACKING BOARD. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-404 877

TEXAS A AND M UNIV COLLEGE STATION

THE TEXAS DEW POINT FRONT AS SEEN BY TIROS I;

(U)

FEB 63 28p HENRY, WALTER K. THOMPSON,

AYLMER H.;

REPT. NO. SR-3

CONTRACT: AF 19(6-4)-8450

PROJ: AF-6698

TASK: 66982

MONITOR: AFCL 63-244

UNCLASSIFIED REPORT

DESCRIPTORS: •DEW POINT, •METEOROLOGICAL
SATELLITES, •WEATHER FORECASTING, CLOUDS, AIR
MASS ANALYSIS.

(U)

IDENTIFIERS: TEXAS, MARFA FRONT, TIROS.

(U)

THE GENERAL BEHAVIOR OF THE WEST TEXAS DEW
POINT FRONT AND THE RELATED CLOUD PATTERNS ARE
DESCRIBED. SEVERAL TIROS I PS OF WEST TEXAS
AND THE SURROUNDING AREA WERE SELECTED FOR SPECIAL
STUDY. THESE PICTURES INCLUDED ALSO EXAMPLES WHEN THE
DEW POINT FRONT WAS ABSENT. THE EXAMPLES GENERALLY
SHOWED GOOD AGREEMENT BETWEEN THE DEW POINT FRONT AND
CLOUD PATTERN AS PICTURED BY THE SATELLITE. THE
MATCH BETWEEN THE CLOUD PATTERNS AND THE LOCATION OF
THE DEW POINT FRONT WAS NOT PERFECT DUE PARTLY TO THE
THIN LAYER OF MOIST AIR NEAR THE SURFACE LOCATION OF
THE DEW POINT FRONT, AND OCCASIONALLY, HIGHER CLOUD
LAYERS, USUALLY CIRRUS, WHICH PARTIALLY MASKED THE
LOCATION OF THE DEW POINT FRONT AS PICTURED BY THE
SATELLITE. A FEW CASES OCCURRED WHERE CLOUD
PATTERNS SIMILAR TO THOSE ASSOCIATED WITH THE DEW
POINT FRONT WERE PRESENT, BUT FOR WHICH NO DEW POINT
FRONT WAS PRESENT. OF SPECIAL INTEREST IS A CASE
OF COLLAPSE AND CURGE OF THE DEW POINT FRONT.

(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-294 810

TEXAS A AND M UNIV COLLEGE STATION
TIME CHANGES IN A TEMPERATURE LATITUDE CLOUD AND
WEATHER SYSTEM AS REVEALED BY METEOROLOGICAL
SATELLITE DATA (U)

DEC 62 1V RANDERSON, DARRYL;
REPT. NO. R62 22 TSRI
CONTRACT: AF19 604 8450
MONITOR: AFCL 62 867

UNCLASSIFIED REPORT

DESCRIPTORS: *CLOUDS, *WIND, CLIMATOLOGY, MEASUREMENT,
METEOROLOGICAL INSTRUMENTS, SATELLITES (ARTIFICIAL),
TEMPERATURE (U)

THE EVOLUTION OF DEVELOPING CLOUD BANDS
ACCOMPANYING A SLOWLY MOVING COLD FRONT OVER THE
CENTRAL UNITED STATES WAS STUDIED USING TIROS
I PHOTOGRAPHS AS WELL AS CONVENTIONAL ANALYSIS
TOOLS. THESE CLOUD BANDS APPEARED TO FORM IN THE
RIGHT ENTRANCE REGION OF THE AXIS OF MAXIMUM WIND
BETWEEN THE 700-MB AND 400-MB LEVELS AND MOVE EAST-
SOUTHEASTWARD. IN THE VICINITY OF AND JUST NORTH
OF THE AXIS OF MAXIMUM WIND WAS A ZONE OF VERY DRY,
CLOUDLESS AIR. VISUAL EVIDENCE IS THUS AVAILABLE
TO FURTHER SUPPORT SEVERAL JET STREAM MODELS WHICH
SUGGEST HIGH CLOUDS IN THE VICINITY OF THE RIGHT
ENTRANCE REGION AND CLOUDLESS SKIES IN THE LEFT
ENTRANCE REGION OF THE HIGH LEVEL JET STREAM. A
DESCRIPTION AND EXPLANATION OF SOME LOW CLOUD
PHENOMENA OCCURRING DURING THE PERIOD ARE ALSO
INCLUDED. LOCAL EFFECTS PROBABLY CAUSED THE
PICTURED CLOUDS TO CONCENTRATE ALONG THE COAST LINE.
OVER LAND, THE CLOUDS FORMED INTO CLOUD STREETS
WHICH WERE ORIENTED PARALLEL TO THE WIND NEAR THE
CLOUD BASE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-PAS 582

STANFORD RESEARCH INST MENLO PARK CALIF
AN EXAMINATION OF SOME TIROS II RADIATION DATA AND
RELATED STUDIES

(U)

1V

FURUKAWA, P.M.; DAVIS, P.M.; VIEZER, W.;

REPT. NO. 62 859

CONTRACT: AF19 62R 322

MONITOR: AFRL 62 859

UNCLASSIFIED REPORT

DESCRIPTORS: *INFRARED RADIATION, *METEOROLOGY,
*SATELLITES (ARTIFICIAL), ATMOSPHERE, EXPERIMENTAL DATA,
HEAT TRANSFER, MAPS, MEASUREMENT (U)
IDENTIFIERS: TITAN (U)

SAMPLE RADIATION MAPS SELECTED FROM THE TIROS II
RADIATION DATA CATALOG ARE EXAMINED IN ORDER TO
EVALUATE THEIR REPRESENTATIVENESS AND LIMITATIONS.
THE DIFFICULTIES ENCOUNTERED IN THE EXAMINATION OF
THE DATA FOR CHANNEL 1 (6.0 TO 6.5 MICRONS) ARE
DESCRIBED. THE AVERAGED CATALOG DATA FOR CHANNEL
2 (8 TO 12 MICRONS) ARE COMPARED WITH THE
SYNOPTIC SITUATION, THE ACTUAL MEASUREMENTS, AND THE
CALCULATED VALUES OF THE INTENSITY IN THE ZENITH
DIRECTION. A GENERAL DISCUSSION OF THE RADIATIVE
BUDGET OF THE TROPOSPHERE AND ITS RELATIONSHIP TO THE
UPWARD FLUX AT THE TROPOPAUSE IS ALSO PRESENTED.
(AUTHOR)

(U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-277 275

ALLIED RESEARCH ASSOCIATES INC BOSTON MASS
INTERPRETATION OF TIROS II RADIATION
MEASUREMENTS

(U)

MAY 62 IV WEXLER, RAYMOND:

REPT. NO. 62 638

CONTRACT: AF19 604 5968

MONITOR: AFRL 62 638

UNCLASSIFIED REPORT

DESCRIPTORS: *SATELLITES (ARTIFICIAL), AIRBORNE, ALBEDO,
ATMOSPHERE, BLACKBODY RADIATION, CLOUD HEIGHT
INDICATORS, CLOUDS, INFRARED DETECTORS, INFRARED
RADIATION, METEOROLOGICAL INSTRUMENTS, METEOROLOGY,
SOLAR ATMOSPHERE
IDENTIFIERS: TIROS

(U)

(U)

TRANSMISSIONS DUE TO DIFFERENT ATMOSPHERIC GASES
FOR TIROS INFRARED SENSORS ARE COMPUTED. THE
RELATIONS BETWEEN CHANNEL 2 RADIATION AND SURFACE
TEMPERATURE, AND CHANNEL 4 AND TOTAL RADIATION ARE
DERIVED FROM REPRESENTATIVE RADIOSONDE ASCENS.
THE VARIATION OF CHANNEL 2 AND 4 RADIATION WITH
AIR MASS IS DERIVED FROM SELECTED ORBITS OF TIROS
II AND COMPARED WITH THEORETICAL CALCULATIONS. A
DISCREPANCY EXISTS BETWEEN THEORETICAL AND OBSERVED
LIMB DARKENING. A COMPARISON BETWEEN THE OBSERVED
AND THEORETICAL RELATIONS FOR CHANNELS 2 AND 4
INDICATES EITHER AN ERROR IN THE RELATIVE
CALIBRATIONS OR THAT THE EFFECT OF ATMOSPHERIC
ABSORPTION ON CHANNEL 4 IN RELATION TO CHANNEL 2
IS GREATER THAN THAT DETERMINED EMPIRICALLY FROM
LABORATORY DATA. A PRELIMINARY COMPARISON IS MADE
OF ALBEDOS DEDUCED FROM CHANNEL 3 OBSERVATIONS WITH
SURFACE TEMPERATURES DETERMINED FROM CHANNEL 2
OBSERVATIONS. THE ALBEDOS APPEAR APPROPRIATE TO
CLEAR, PARTIAL CLOUDY AND OVERCAST CONDITIONS. A
COMPARISON OF CHANNEL 2 OBSERVATIONS WITH SYNOPTIC
WEATHER CONDITIONS SHOWS AN EXCELLENT FIT IN THE
LOCATIONS OF CLEAR AND HIGH OVERCAST AREAS.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-273 099

BOEING CO SEATTLE WASH

INFRARED SATELLITE BACKGROUNDS. PART 1. ATMOSPHERIC

RADIATIVE PROCESSES

(U)

SEP 61

IV

MCDONALD, RICHARD K.; BELL, JOHN;

REPT. NO. D2 90094 P1

CONTRACT: AF19 604 7457

MONITOR: AFCL 1069 P1

UNCLASSIFIED REPORT

DESCRIPTORS: *INFRARED RADIATION, *SATELLITES
(ARTIFICIAL), ABSORPTION, AEROSOLS, AIR, ATMOSPHERE,
CARBON DIOXIDE, CIRRUS CLOUDS, CLOUDS, EARTH, ICE,
MOLECULES, OZONE, REFLECTION, SCATTERING, STRATOSPHERE,
SUN, WATER VAPOR (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-272 764

MICHIGAN UNIV ANN ARBOR

ATMOSPHERIC MEASUREMENTS FROM SATELLITE OBSERVATIONS
OF STELLAR REFRACTION

JAN 62

IV

JONES, L.M.; FISCHBACH, F.F.; PETERSON,

J.W.;

REPT. NO. 04963 1 T

CONTRACT: NASW140

(U)

UNCLASSIFIED REPORT

DESCRIPTORS: *ATMOSPHERE, *METEOROLOGY, *REFRACTION,
*SATELLITES (ARTIFICIAL), BAROMETRIC PRESSURE,
COLLECTING METHODS, DENSITY, LIGHT, LIGHT TRANSMISSION,
STARS, TEMPERATURE (U)

A METHOD OF OBTAINING ATMOSPHERIC DENSITY,
TEMPERATURE AND PRESSURE DATA BY OBSERVING REFRACTION
OF STELLAR IMAGES WITH INSTRUMENTS IN A SATELLITE IS
DESCRIBED. DATA ACQUISITION AND ALTITUDE RANGE IS
SUCH AS TO PERMIT MAKING OF WEATHER MAPS BETWEEN 25
MB AND PERHAPS 500 MB. (AUTHOR) (U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-268 195

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

PHYSICAL SIGNIFICANCE OF THE TIROS II RADIATION
EXPERIMENT.

(U)

DEC 61 16P HANEL, R. A.; WARK, D. O. ;

REPT. NO. NASA-TN-D-701

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH THE U.
S. WEATHER BUREAU. PAPER PRESENTED AT THE OPTICAL
SOCIETY OF AMERICA IN PITTSBURGH, PENNSYLVANIA,
MAR 1961. ALSO AVAILABLE FROM NASA.

DESCRIPTORS: *EARTH(PLANET) .INFRARED RADIATION .
*METEOROLOGY .RADIOMETERS .SOLAR RADIATION .ATMOSPHERE
.DESIGN .INSTRUMENTATION .LIGHT .MEASUREMENT .REFLECTION
.SATELLITES(ARTIFICIAL) .SCIENTIFIC RESEARCH .WEATHER
FORECASTING (M)

THE METEOROLOGICAL SATELLITE TIROS II CARRIES A
FIVE-CHANNEL RADIOMETER WHICH SCANS THE EARTH AS THE
SATELLITE ROTATES. TWO CHANNELS ARE SENSITIVE TO
SUNLIGHT REFLECTED FROM THE EARTH; THREE ARE
RESPONSIVE TO TERRESTRIAL INFRARED EMISSION. THE
EFFECT OF THE OPTICAL PROPERTIES UPON THE
MEASUREMENTS IS DISCUSSED. CALCULATIONS BASED ON
MODEL ATMOSPHERES SHOW THE SOURCES OF OUTGOING
TERRESTRIAL RADIATION AND LIMB-DARKENING EFFECTS FOR
TWO OF THE CHANNELS. A MAP OF THE RADIATION
RECEIVED BY THE CHANNEL SENSITIVE IN THE WINDOW
REGION (8 TO 12 MICRONS) IS COMPARED WITH A
CONVENTIONAL WEATHER CHART. (AUTHOR) (U)

UNCLASSIFIED

DWC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-264 003

STANFORD RESEARCH INST MENLO PARK CALIF
COMPARISONS OF RADAR PRECIPITATION AND SATELLITE
CLOUD OBSERVATIONS

(U)

1V

NAGLE, ROLAND E.; BLACKMER, ROY H. JR.;

CONTRACT: AF19 604 5982

MONITOR: AFCL 1024

UNCLASSIFIED REPORT

DESCRIPTORS: ATMOSPHERIC PRECIPITATION, CHEMICAL
PRECIPITATION, SATELLITES (ARTIFICIAL), CHOLANTHRENES,
DATA PROCESSING SYSTEMS, METEOROLOGICAL RADAR,
METEOROLOGY, PHOTOGRAPHIC CHEMICALS, RADAR SIGNALS,
RADAR TRACKING, SIMULATION, STATISTICAL ANALYSIS (U)

A PROGRAM IS DESCRIBED WHICH IS DESIGNED TO PROVIDE
DATA FOR EVALUATING PRECIPITATION-TO-CLOUD
RELATIONSHIPS IN ASSOCIATION WITH THE TIROS I
METEOROLOGICAL SATELLITE EXPERIMENT. PRELIMINARY
RESULTS OF SATELLITE CLOUD AND RADAR PRECIPITATION
OBSERVATION COMPARISONS ARE PRESENTED. DATA-
HANDLING PROCEDURES AND DIFFICULTIES ENCOUNTERED IN
WORKING WITH THE SATELLITE OBSERVATIONS ARE
DESCRIBED. FROM SUBJECTIVE COMPARISONS,
PRECIPITATING CLOUDS WERE FOUND TO BE HIGHLY
REFLECTIVE, BUT THE CONVERSE IS NOT NECESSARILY TRUE.
CLEAR OR SCATTERED, SHARP-EDGED CLOUD AREAS WITHIN
OR IN JUXTAPOSITION TO EXTENSIVE CLOUD SYSTEMS
SOMETIME APPEAR TO PARALLEL AREAS OF PRECIPITATION
WITHIN THE SYSTEM. IT WAS FOUND THAT THE RADAR
ECHOES CAN SOMETIMES BE USED TO LOCATE AND ORIENT
SATELLITE PICTURES WHEN OTHER DATA ARE LACKING OR
INSUFFICIENT. IN CONTRAST TO THE SPECTACULAR CLOUD
PATTERNS REVEALED IN THE SATELLITE PICTURES, NO
OBVIOUS NOR UNIQUE RELATIONSHIPS WERE FOUND WHICH
DISTINGUISH PRECIPITATING FROM NON-PRECIPITATING
CLOUDS. PRELIMINARY STUDIES RE-EMPHASIZE THE LOW
PERCENTAGE OF CLOUDS THAT PRECIPITATE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-265 891

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

INFRARED AND REFLECTED SOLAR RADIATION MEASUREMENTS
FROM THE TIROS II METEOROLOGICAL SATELLITE (U)

NOV 61 IN BANDEEN, W.R. HANEL, R.A. I

REPT. NO. TN D 1096

UNCLASSIFIED REPORT

DESCRIPTORS: *BOMBERS, *INFRARED RADIATION,
*RADIOMETERS, *SATELLITES (ARTIFICIAL), ALBEDO
(ASTRONOMY), INSTRUMENTATION, MEASUREMENT,
METEOROLOGICAL BATTERIES, METEOROLOGICAL INSTRUMENTS,
ORBITAL TRAJECTORIES, REFLECTION, THERMAL RADIATION,
THERMISTORS (U)

IDENTIFIERS: TIROS (U)

IN THE TIROS II, THE SATELLITE'S SPIN PROVIDES
THE SCAN LINE OF THE MEDIUM RESOLUTION RADIOMETER
WHICH IS THEN ADVANCED BY THE ORBITAL MOTION. THE
SPATIAL RESOLUTION IS ABOUT 40 MILES SQUARE WHEN THE
EARTH DIRECTLY BENEATH THE SATELLITE IS VIEWED. THE
FIVE CHANNELS EMPLOY MONOMETER DETECTORS AND FILTERS
TO LIMIT THE SPECTRAL RESPONSES TO FIVE BANDS: 6 TO
6.5 MICRONS, 8 TO 12 MICRONS, 0.2 TO 6 MICRONS, 8 TO
30 MICRONS, AND 0.55 TO 0.75 MICRONS. THESE FIVE
BANDS STUDY, RESPECTIVELY: RADIATION IN THE WATER
VAPOR ABSORPTION BAND; DAY AND NIGHTTIME CLOUD
COVER; ALBEDO THERMAL RADIATION; AND VISUAL MAPS FOR
COMPARISON WITH SATELLITE VIDICON PICTURES. THE
LOW RESOLUTION NON-SCANNING RADIOMETER MEASURES THE
EARTH'S BLACKBODY TEMPERATURE AND ALBEDO. THIS
RADIOMETER CONSISTS OF TWO THERMISTORS, EACH IN THE
APEX OF A REFLECTIVE CONE WHICH PROVIDES OPTICAL
GAIN. ONE THERMISTOR IS BLACK AND RESPONDS TO
BOTH THERMAL AND REFLECTED SOLAR RADIATION. THE
SECOND RESPONDS TO THERMAL BUT REFLECTS SOLAR
RADIATION. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-205 485

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

THE TIROS II RADIATION EXPERIMENT

(U)

OCT 61 IV HANEL, R.A.; STROUD, W.G.;
REPT. NO. TR D 1152

UNCLASSIFIED REPORT

DESCRIPTORS: *BLACKBODY RADIATION, *METEOROLOGY,
*SATELLITES (ARTIFICIAL), AIRBORNE, COLLECTING METHODS,
DATA TRANSMISSION SYSTEMS, INFRARED RADIATION, MAGNETIC
TAPE, MEASUREMENT, RADIOMETERS, RECORDING SYSTEMS,
TELEMETERING DATA, TELEVISION CAMERAS, ULTRAVIOLET
RADIATION

(U)

IDENTIFIERS: TIROS

(U)

THE TIROS II METEOROLOGICAL SATELLITE WAS PLACED
INTO ORBIT ON NOVEMBER 23, 1960. IT CONTAINS TWO
TELEVISION CAMERAS AND EQUIPMENT FOR A FAMILY OF
ELECTROMAGNETIC RADIATION EXPERIMENTS, INCLUDING A
MEDIUM RESOLUTION RADIOMETER. THE MEDIUM
RESOLUTION RADIOMETER IS A CLUSTER OF FIVE SENSORS
WHICH HAVE THEIR OPTICAL AXES INCLINED 45 DEGREES TO
THE SPIN AXIS OF THE SATELLITE. THE SPIN OF TIROS
II PROVIDES THE SCANNING MOTION. THE FIVE
RADIOMETER CHANNELS ARE SENSITIVE TO THE FOLLOWING
SPECTRAL BANDS: 6 TO 6.5; 8 TO 12; 0.2 TO 6; 8 TO
30; AND 0.55 TO 0.75 MICRONS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-263 060

AIR FORCE CAMBRIDGE RESEARCH LABS L G HANSLON FIELD
MASS

CONTRIBUTIONS TO SATELLITE METEOROLOGY, VOLUME
II

(U)

ADP 61 15 VALOVIC, FRANCIS R.;

REPT. NO. 438

MONITOR: AFRL 639

UNCLASSIFIED REPORT

DESCRIPTORS: *METEOROLOGY, *SATELLITES (ARTIFICIAL),
AERIAL PHOTOGRAPHY, CLOUDS, COLLECTING METHODS,
METEOROLOGICAL INSTRUMENTS, RELIABILITY, TELEMETERING
DATA

(U)

IDENTIFIERS: TIROS

(U)

THIS ANALYSIS CONTAINS SOME PRELIMINARY RESULTS
USING PHOTOGRAPHS FROM TIROS I AND SOME POSSIBLE
METEOROLOGICAL SATELLITE APPLICATIONS OF CLOUD AND
RADIATION DATA. PRESENTED ARE: AN OPERATIONAL
EVALUATION OF TIROS I; ATMOSPHERIC RADIATION
STUDIES WHICH HAVE POSSIBLE SATELLITE APPLICATIONS;
CLOUD STUDIES; AND METEOROLOGICAL SATELLITE SYSTEM
ANALYSES. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-262 946

RADIO CORP OF AMERICA PRINCETON N J DEFENSE ELECTRONIC
PRODUCTS

TIROS I METEOROLOGICAL SATELLITE SYSTEM, VOLUME

III

(U)

IV

UNCLASSIFIED REPORT

DESCRIPTORS: *INSTRUMENTATION, *SATELLITES (ARTIFICIAL),
COLLECTING METHODS, EFFECTIVENESS, METEOROLOGY,
OPERATION, RELIABILITY, TELEMETERING DATA, TELEVISION
COMMUNICATION SYSTEMS, TESTS (U)

IDENTIFIERS: TIROS (U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-266 945

RADIO CORP OF AMERICA PRINCETON N J DEFENSE ELECTRONIC
PRODUCTS

TIROS I METEOROLOGICAL SATELLITE SYSTEM, VOLUME

II

(U)

IV

UNCLASSIFIED REPORT

DESCRIPTORS: *SATELLITES (ARTIFICIAL), COLLECTING
METHODS, METEOROLOGY, RELIABILITY, TELEMETERING DATA,
TELEVISION COMMUNICATION SYSTEMS, TESTS

(U)

IDENTIFIERS: TIROS

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-262 944

RADIO CORP OF AMERICA PRINCETON N J DEFENSE ELECTRONIC
PRODUCTS

TIROS I METEOROLOGICAL SATELLITE SYSTEM. VOLUME

I

(U)

IV

UNCLASSIFIED REPORT

DESCRIPTORS: INSTRUMENTATION, SATELLITES (ARTIFICIAL),
COLLECTING METHODS, EFFECTIVENESS, METEOROLOGY,
OPERATION, RELIABILITY, TELEMETERING DATA, TELEVISION
COMMUNICATION SYSTEMS, TESTS (U)

IDENTIFIERS: TIROS

(U)

THIS ANALYSIS ON THE TIROS I METEOROLOGICAL
SATELLITE SYSTEM INCLUDES DETAILED DISCUSSIONS OF
THE DEVELOPMENT, DESIGN, TEST, AND OPERATION OF
PORTIONS OF THE SYSTEM. THESE PORTIONS INCLUDE THE
SATELLITE, IN ITS ENTIRETY, AND THE MAJOR PART OF THE
(GROUND BASED) COMMAND AND DATA-ACQUISITION
STATIONS, FIVE IDENTICAL SATELLITES, AND THREE
ESSENTIALLY-SIMILAR SETS OF GROUND-STATION EQUIPMENT
WERE FABRICATED FOR THE TIROS I PROJECT.
SPECIFIC UNITS ARE DISCUSSED ONLY WHERE DIFFERENCES
IN HANDLING, SCHEDULING, OR OPERATION ARE OF
IMPORTANCE. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-257 965

ALLIED RESEARCH ASSOCIATES INC BOSTON MASS

TIROS METEOROLOGY

(U)

DESCRIPTIVE NOTE: FINAL REPT.

MAR 61 IV GLASER, ARNOLD H.;

CONTRACT: AF 19(604)-5581, ARPA ORDER-26-59

MONITOR: AFRL A13

UNCLASSIFIED REPORT

DESCRIPTORS: *METEOROLOGY, *SATELLITES (ARTIFICIAL),

AERIAL PHOTOGRAPHS, CLOUDS, CYCLONES, EFFECTIVENESS,

TELEMETERING DATA, TELEVISION COMMUNICATION SYSTEMS,

WEATHER FORECASTING

(U)

IDENTIFIERS: TIROS

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 701K09

AD-256 899

ALLIED RESEARCH ASSOCIATES INC BOSTON MASS
METEOROLOGICAL SATELLITE SYSTEM ANALYSES

(U)

DEC 59 1V COOPER, GERALD;

CONTRACT: AF19 604 5582

MONITOR: ARPA 26 59

UNCLASSIFIED REPORT

DESCRIPTORS: *AERIAL PHOTOGRAPHY, *METEOROLOGICAL
INSTRUMENTS, *SATELLITES (ARTIFICIAL), INFRARED
DETECTORS, INFRARED RADIATION, INSTRUMENTATION,
METEOROLOGY, OZONE, ULTRAVIOLET RADIATION

(U)

A LITERATURE SURVEY OF METEOROLOGICAL SATELLITE APPLICATIONS WAS MADE TO DEFINE SOME INFORMATION REQUIREMENTS OF METEOROLOGICAL CONSUMERS. AN ATTEMPT WAS MADE TO APPRECIATE PROBLEMS INVOLVED IN TRANSMITTING SUCH INFORMATION TO THE CONSUMER BY EXAMINING PHOTOGRAPHS OF THE EARTH TAKEN FROM AN ATLAS NOSE CONE. DIFFICULTIES IN PROCESSING THE PHOTOGRAPHS LED TO THE DEVELOPMENT OF A TECHNIQUE FOR ESTABLISHING THE CAMERA AXIS AZIMUTH AND TIME OF PHOTOGRAPH FROM LANDMARKS WHEN OTHER DATA CANNOT SUPPLY THIS INFORMATION. SOME STUDY WAS DEVOTED TO DETERMINING THE TYPE OF METEOROLOGICAL INFORMATION THAT CAN BE DEVELOPED BY USING SENSORS WHICH DETECT ULTRAVIOLET AND INFRARED RADIATION RATHER THAN THE VISIBLE RADIATION DETECTED IN PHOTOGRAPHS. IN THIS CONNECTION, A METHOD FOR DETERMINING ATMOSPHERIC OZONE AMOUNTS BY MEASURING THE SCATTERED RADIATION AT TWO DIFFERENT WAVE LENGTHS IN THE ULTRAVIOLET WAS INVESTIGATED TO DETERMINE THE THEORETICAL RATIOS OF RADIATION INTENSITIES TO BE EXPECTED. THE VIEW OF THE EARTH'S ATMOSPHERE IN AN INFRARED WATER ABSORPTION BAND WAS EXAMINED AND FOUND TO CORRESPOND TO A PICTURE OF THE TEMPERATURE OF A CONSTANT DEW POINT SURFACE. SOME CONSTANT DEWPOINT SURFACES WERE ANALYZED IN CONNECTION WITH THE CORRESPONDING CONVENTIONAL SURFACE AND UPPER AIR WEATHER MAPS. METEOROLOGICAL RELATIONSHIPS EXIST WHICH SHOULD BE STUDIED FURTHER. (AUTHOR)

(U)

UNCLASSIFIED

701K09

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /01K09

AD-212 618

STANFORD RESEARCH INST MENLO PARK CALIF
UPPER ATMOSPHERE CLUTTER RESEARCH, PART III. RUSSIAN
EARTH SATELLITES 1957 ALPHA AND BETA RADIO AND RADAR
DATA AND A SIMPLE SATELLITE POSITION PREDICTION
TECHNIQUE (U)

DESCRIPTIVE NOTE: FINAL REPT.

MAY 59 60p JAYE, W.E.; RORDEN, L.M.;

CONTRACT: AF 30(602)-1742

MONITOR: RADC TR-59-45

UNCLASSIFIED REPORT

DESCRIPTORS: *AURORAE, *METEOROLOGY, *RADAR REFLECTIONS,
*SATELLITES (ARTIFICIAL), *TRACKING, RADAR
INTERFERENCE (U)
IDENTIFIERS: USSR (U)

CORPORATE AUTHOR - MONITORING AGENCY

*ADVANCED RESEARCH PROJECTS AGENCY
WASHINGTON D C

* * *

ARPA-26 59
METEOROLOGICAL SATELLITE SYSTEM
ANALYSES
AD-256 899

*AEROMETRIC RESEARCH INC GOLETA CALIF

* * *

THE USE OF METEOROLOGICAL
SATELLITE CLOUD PHOTOGRAPHS IN
SILENT AREA FORECASTING.
AD-416 408

* * *

SILENT AREA ANALYSIS USING
TIROS DATA.
(NWRF-33 0964 094)
AD-448 466

* * *

RELATIONSHIPS BETWEEN TIROS
CLOUD PATTERNS AND AIR MASS (WIND
AND THERMAL) STRUCTURE.
(NWRF-33-0965-109)
AD-622 396

*AERONAUTICAL SYSTEMS DIV WRIGHT-
PATTERSON AFB OHIO

* * *

ASD-TDR63 265
RESEARCH TO COMPILE UNPUBLISHED
SPACE MATERIALS INFORMATION
PERTAINING TO RCA SPACE CAPSULE
PROGRAM.
AD-423 169

*AIR FORCE CAMBRIDGE RESEARCH LABS L G
HANSCOM FIELD MASS

* * *

65-80 ERP-81
ANALYSIS AND INTERPRETATION OF
TIROS II INFRARED RADIATION
MEASUREMENTS.
AD-613 770

* * *

438
CONTRIBUTIONS TO SATELLITE
METEOROLOGY. VOLUME II
(AFCRL-438)
AD-263 060

* * *

AFCRL
ANALYSIS AND INTERPRETATION OF
TIROS II INFRARED RADIATION
MEASUREMENTS.
AD-613 770

* * *

AFCRL-62 638
INTERPRETATION OF TIROS II

RADIATION MEASUREMENTS
AD-277 275

* * *

AFCRL-62 859
AN EXAMINATION OF SOME TIROS II
RADIATION DATA AND RELATED STUDIES
AD-285 582

* * *

AFCRL-62 867
TIME CHANGES IN A TEMPERATURE
LATITUDE CLOUD AND WEATHER SYSTEM
AS REVEALED BY METEOROLOGICAL
SATELLITE DATA
AD-294 810

* * *

AFCRL-63-244
THE TEXAS DEW POINT FRONT AS
SEEN BY TIROS I,
AD-404 877

* * *

AFCRL-63 493
TROPICAL CYCLONES OF THE
EASTERN NORTH PACIFIC AS REVEALED
BY TIROS OBSERVATIONS.
AD-412 403

* * *

AFCRL-63 655
APT USERS' GUIDE
AD-409 109

* * *

AFCRL-63 694
AN ANALYSIS OF STRATIFORM CLOUD
PATTERNS IN THE CANARY ISLANDS
REGION,
AD-418 187

* * *

AFCRL-63 843
ANALYSES IN THE FIELD OF
SATELLITE METEOROLOGY. PART I.
SUMMARY.
AD-422 285

* * *

AFCRL-63 860
PRELIMINARY EXAMINATION OF
DAYTIME RADIATION DATA FROM TIROS
III OVER CLOUDY REGIONS,
AD-420 243

* * *

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13. ABSTRACT Capabilities and potentialities of weather satellites to detect meteorological parameters such as rain, temperature, cloud cover, and wind for weather-forecasting purposes are examined. Various types of equipment for meteorological uses and data-handling are evaluated and some improved procedures are considered. Photographic data on tropical cyclones (hurricanes and typhoons) derived principally from TIROS satellites comprise an important subject of research.		

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